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U.S. Navy Statutory Monitoring of Tributyltin in Selected U.S. Harbors

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ADMINISTRATIVE INFORMATION

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SUMMARY

BACKGROUND

In compliance with the requirements of the Organotin Antifouling Paint Control Act ~~(OAPCA)~~ of 1988, the U.S. Navy has initiated a harbor monitoring program. Under Section 7(b) of the act—Navy Home Port Monitoring—the U.S. Navy is required to "...provide for periodic monitoring, not less than quarterly, of waters serving as the home port for any Naval Vessel coated with an antifouling paint containing organotin to determine the concentration of organotin in the water column, sediments, and aquatic organisms of such waters."

A baseline survey of water-column tributyltin ~~(TBT)~~ concentrations was conducted in 15 Navy harbors between 1984 and 1986. These data were used in the U.S. Navy's environmental risk assessment and supported initiation of the U.S. EPA Special Review. Under provisions of the Navy's Environmental Assessment and in support of projected implementation of the organotin painting program, San Diego, Norfolk, and Pearl Harbors have been monitored periodically between 1986 and 1988. Starting in October 1988, these harbors have been monitored quarterly in compliance with the provisions of OAPCA.

OBJECTIVE

In compliance with the requirements of the Organotin Antifouling Paint Control Act, a quarterly monitoring program has been initiated to do the following:

1. Document butyltin concentrations in water, tissues, and sediments within harbors that serve as a home port for Navy vessels coated with organotin antifouling paint;
2. Determine if TBT concentrations are changing significantly over time in relation to Navy use patterns.

FINDINGS

San Diego Bay

Tributyltin concentrations in waters of San Diego Bay have significantly decreased in recent monitoring periods from levels previously recorded. In most instances, the observed decreases occurred after the February 1988 monitoring period reflecting the probable affect of restrictive TBT paint-use legislation enacted in California in January 1988. During the last two quarterly surveys, TBT surface- and bottom-water concentrations were below 5 ng L^{-1} (parts per trillion) in three of the four regions studied.

Sediment TBT concentrations were variable over time and showed no clearly identifiable trends. Tributyltin profiles in sediments in San Diego Bay have not clearly followed decreases in water concentrations and likely reflect the complex and variable sediment composition encountered throughout the bay.

TBT concentrations in the tissues of the bay mussel *Mytilus edulis* have generally been declining in San Diego Bay since February 1988. Prior to that monitoring period, tissue TBT concentrations had

gradually increased. This trend follows that of surface-water TBT concentrations and suggests that TBT concentrations in natural mussel populations are reasonable indicators of ambient TBT water concentrations.

Pearl Harbor

A case study was initiated in Pearl Harbor in 1987 to evaluate the effect of organotin antifouling paint use (application and hull release) on harbor butyltin concentrations. Pearl Harbor is operated by the U.S. Navy and has very little commercial and private use. Tributyltin loading from Navy ships painted with TBT antifoulants was closely correlated ($r^2 = 0.85$) with surface-water TBT concentrations in the Southeast Loch region of Pearl Harbor. When ships painted with TBT paint departed, water TBT concentrations decreased. The brief temporal increases in TBT concentrations coincident with increased ship presence and subsequent decreases are consistent with data indicating that TBT is not persistent in the water column at environmental concentrations. Other areas in Pearl Harbor (with the exception of a small yacht marina), typically exhibited very low TBT concentrations, particularly in recent monitoring periods. During 1989 quarterly monitoring periods, all regions, with the exception of the Rainbow Marina, exhibited mean TBT surface- and bottom-water concentrations under 10 ng L^{-1}. Four of these seven regions studied exhibited TBT water concentrations below 2 ng L^{-1}.

Elevated sediment TBT concentrations were associated with vessel painting activity in drydock areas and decreased considerably with distance from the drydocks. Increased sediment TBT concentrations (220 to 420 ng g^{-1}) were also measured in the berthing area of Southeast Loch in association with an increased TBT loading factor from the presence of up to six naval vessels painted with TBT paint. Subsequent monitoring showed a decrease in sediment TBT concentrations.

Tissue TBT concentrations were highest in the Rainbow Marina area and generally low (< 100 ng g^{-1}) in other areas. Sufficient data are not currently available to identify long term trends.

Norfolk

Norfolk has not been as frequently monitored as San Diego Bay or Pearl Harbor. It is, therefore, more difficult to determine if apparent trends toward decreasing TBT water concentrations are accurate in the Hampton Roads, Hampton River, and Naval Station regions. The significant decreases observed are likely due to the legislative restrictions on TBT paint use that were enacted in 1987. Continued quarterly monitoring will greatly assist in confirming trends toward decreasing TBT concentrations in these regions. TBT concentrations in the James River remained below 3 ng L^{-1} and are expected to remain very low if the recent decreases are due to restrictions on TBT paint use. Variable surface-water TBT concentrations (2.4 to 25 ng L^{-1}) measured in the Elizabeth River are likely associated with shipyard activity. Thus, this region may not exhibit as large a reduction since legislation restricting use of TBT paints permits application of low-release paints on vessels larger than 25 m. All regions exhibited TBT surface-water concentrations below 5 ng L^{-1} during the last quarterly monitoring period of 1989. Three of five regions studied exhibited TBT concentrations consistently below 6 ng L^{-1} during quarterly monitoring surveys in 1989.

Very little data are available regarding TBT concentrations in sediment and tissue samples from Norfolk Harbor. Since little replication of measurements over time has been achieved, statistical analysis of the data has not been performed. Initial observations indicate that sediment TBT concentrations have decreased by approximately 50 percent at several stations located in the Elizabeth River region during the period from October 1988 to April 1989. Bivalve tissue TBT concentrations have continuously decreased during three sampling periods in the Hampton River region indicating that restrictions

on the use of TBT paints on pleasure craft and subsequent decreases in surface-water TBT concentrations may have been the causative factors. The summary tables of sediment and tissue data provided in this report will be further developed with the addition of samples collected during monitoring periods in 1990. Statistical analysis of the data will then be performed.

Conclusions

Long-term monitoring of TBT in water and tissue samples has indicated statistically significant trends toward decreasing concentrations in association with restrictions on use of TBT antifouling paints in San Diego and Norfolk harbors. Significant decreases were also determined in Pearl Harbor, Hawaii in association with the movements of Naval vessels painted with TBT antifouling paints. Sediment TBT concentrations have generally not exhibited significant decreases with decreasing water concentrations. It is likely that complex and variable physical characteristics of marine sediments complicate TBT adsorption/desorption rates and may restrict availability of sediment TBT to organisms capable of degradative processes. Several additional monitoring periods are required to evaluate long-term trends in sediment TBT concentrations.

For the majority of regions studied in San Diego Bay, Pearl Harbor, and Norfolk Harbor, TBT concentrations in open-water areas are currently below the EPA proposed water-quality criteria level of 10 ng L^{-1}. In San Diego Bay, open-water regions are currently below the proposed State water-quality standard for TBT of 6 ng L^{-1}. Most regions in Pearl Harbor and Norfolk Harbor have recently exhibited TBT water concentrations below 3 ng L^{-1}. Exceptions have been documented in yacht marinas, although current levels have decreased considerably from previous concentrations.

Tissue TBT concentrations analyzed in samples from San Diego Bay, Pearl Harbor, and Norfolk Harbor have generally remained below concentrations recently reported to inhibit bay mussel growth in field studies. Thus, in the absence of criteria for tissue TBT concentrations, tissue TBT concentrations as currently measured do not appear to be generally detrimental to bay mussels. The relevance of tissue TBT levels in oyster and mussel species regarding health is not clear. Observed trends toward decreasing tissue TBT concentrations with decreasing environmental water TBT concentrations indicate that bay mussels may be a useful indicator species of trends in water TBT concentrations.

The previous monitoring data and four quarterly monitoring surveys conducted in 1989 have successfully determined statistically significant changes in water and tissue TBT concentrations in association with TBT antifouling paint use patterns and use on naval vessels. Continued quarterly monitoring is expected to further confirm trends in TBT concentrations in environmental samples associated with use of TBT antifouling paints. Further development of the existing database will assist modeling efforts to predict environmental TBT concentrations.

INTRODUCTION

The Naval Ocean Systems Center has documented butyltin concentrations in Navy-used harbors and ports since 1982. The major thrust of these efforts was focused on San Diego Bay, Pearl Harbor, and the Norfolk area during the period 1985 through 1989. Monitoring efforts in San Diego Bay have evaluated major tributyltin (TBT) sources as well as tidal, vertical, and spatial variability (Valkirs et al., 1986; Seligman et al., 1986; Seligman et al., 1989). The bay consists of a fifteen-mile-long crescent-shaped body of water with one entrance channel. The bay is a well-mixed estuary with depths generally less than 4.5 meters, except for the 7.5- to 20-meter-deep dredged channel (Kram et al., 1989). Currents generally flow along the long axis of the bay with velocities ranging from 0.5 to 3 knots. Freshwater input is minimal, resulting in near-oceanic salinities throughout most of the bay. Many vessel types regularly visit this densely populated, multiple-use water body in Southern California. Facilities include a commercial port, private shipyards, recreational boating and repair facilities, commercial and sport-fishing berths, yacht harbors, and a large naval complex.

Between April 1986 and July 1989, a series of environmental surveys were conducted to evaluate butyltin concentrations in Pearl Harbor on the island of Oahu in the Hawaiian Islands. These investigations were performed as part of a series of follow-on studies to a baseline survey conducted during March and April 1984 (Grovhoug et al., 1987; Grovhoug et al.,1989; Seligman et al., 1989). During these surveys, a total of six U.S. Navy vessels were coated with tributyltin antifouling paints to determine both their efficacy and environmental concentration resulting from use of these TBT antifouling coatings. Pearl Harbor was selected as a test site for these studies because it is a Navy-controlled port with few ambiguous TBT sources. The harbor consists of three main regions: East Loch, Middle Loch, and West Loch. The most heavily used Navy areas within the harbor are the smaller Southeast Loch basin, Naval Shipyard, and Supply Center (Evans, 1974).

Initial baseline data for the Norfolk, VA, region were collected in 1984 (Grovhoug, et al. 1987). Surface waters were sampled in the Elizabeth River and Hampton roads bimonthly between September 1985 and May 1987 (Seligman, et al., 1987). Monitoring was initiated in Norfolk, VA, in June 1986 with quarterly monitoring beginning in October 1988. Five regions were studied during quarterly monitoring intervals. The Norfolk region represents a complex estuary at the confluence of the James and Elizabeth Rivers. The Elizabeth River/Hampton Roads area is the site of major shipbuilding and repair activity and is also a major shipping port. Naval activities include the Norfolk Naval Station and shipyard. The lower James River is the site of an important oyster fishery area.

APPROACH AND METHODS

MONITORING STRATEGY

Our approach to designing a meaningful harbor monitoring program was guided by previous experience in measuring low parts-per-trillion butyltin levels during baseline studies (Grovhoug et al., 1987). Detection of changes in butyltin concentrations in both water, sediment, and tissue samples over time, within and between specific locations, was a principal goal. Station selection and coverage were designed to provide sufficient sampling sites to typify various regions within each harbor. Quarterly-water column sampling was initiated to adequately detect seasonal changes in butyltin concentrations. Because of their integrative nature and, at times, limited availability, tissue samples were collected from selected stations on a semiannual basis. Likewise, sediments were collected semiannually from the same locations as water samples. In San Diego Bay, an abundance of mussels permitted quarterly collection of tissue samples. Sediments were collected quarterly in San Diego Bay as well. Data collected were evaluated to discern any changes in TBT concentrations and to determine if legislative restrictions on TBT paint use had resulted in lower environmental concentrations. In Pearl Harbor, data analysis was focused on determining if TBT loading from naval vessels directly affected harbor TBT concentrations.

REGIONAL APPROACH

Each harbor was divided into study regions that were defined by one or more of the following factors: physiographic features, dredged-channel limits, water motion characteristics, and vessel use pattern. Four regions were defined in San Diego Bay (figure 1) primarily based on current velocity patterns and use characteristics (Seligman et al., 1986). Each region contains at least three key stations that provided a minimum three surface and three near-bottom samples during each sampling period. The northern region (I) is characterized by high-current velocities and rapid flushing rates, and includes most of the shipping channels and dredged areas of the bay. The southern region (II) is largely shallow with low-velocity currents and longer water residence times. The south bay area is also important as a nursery ground for numerous fish and invertebrate species. Navy-use areas (III), including several Navy berthing areas, are moderately well flushed. Marinas and commercial boat basins (IV) are generally characterized by moderate to dense aggregations of vessels in enclosed embayments with reduced flushing characteristics (Seligman et al., 1989). A total of 871 surface-water and deep-water samples were analyzed for TBT from the four regions studied.

Pearl Harbor was subdivided into eight regions (figure 2) by geographic and use-pattern factors: Main Channels (a composite region comprising the Entrance Channel, South Channel and North Channel regions), Southeast Loch, Rainbow Marina (a small pleasure boat facility with a capacity of about 70 vessels, located in the Aiea Bay area in the northeastern corner of Pearl Harbor), East Loch, Middle Loch, West Loch, Drydock #2, and Drydock #4. A total of 814 surface- and deep-water samples were analyzed for TBT from the eight regions studied.

Norfolk Harbor was subdivided into five regions (figure 3) based on geographic and use-pattern factors: The Naval Station, the Elizabeth, Hampton and James Rivers, and the Hampton Roads region. The Elizabeth River is representative of commercial shipyard activity. The James River is an essentially clean environment, free of TBT input. The Hampton River is exposed to TBT input from pleasure craft. The Naval Station receives some TBT input from a small number of ships currently

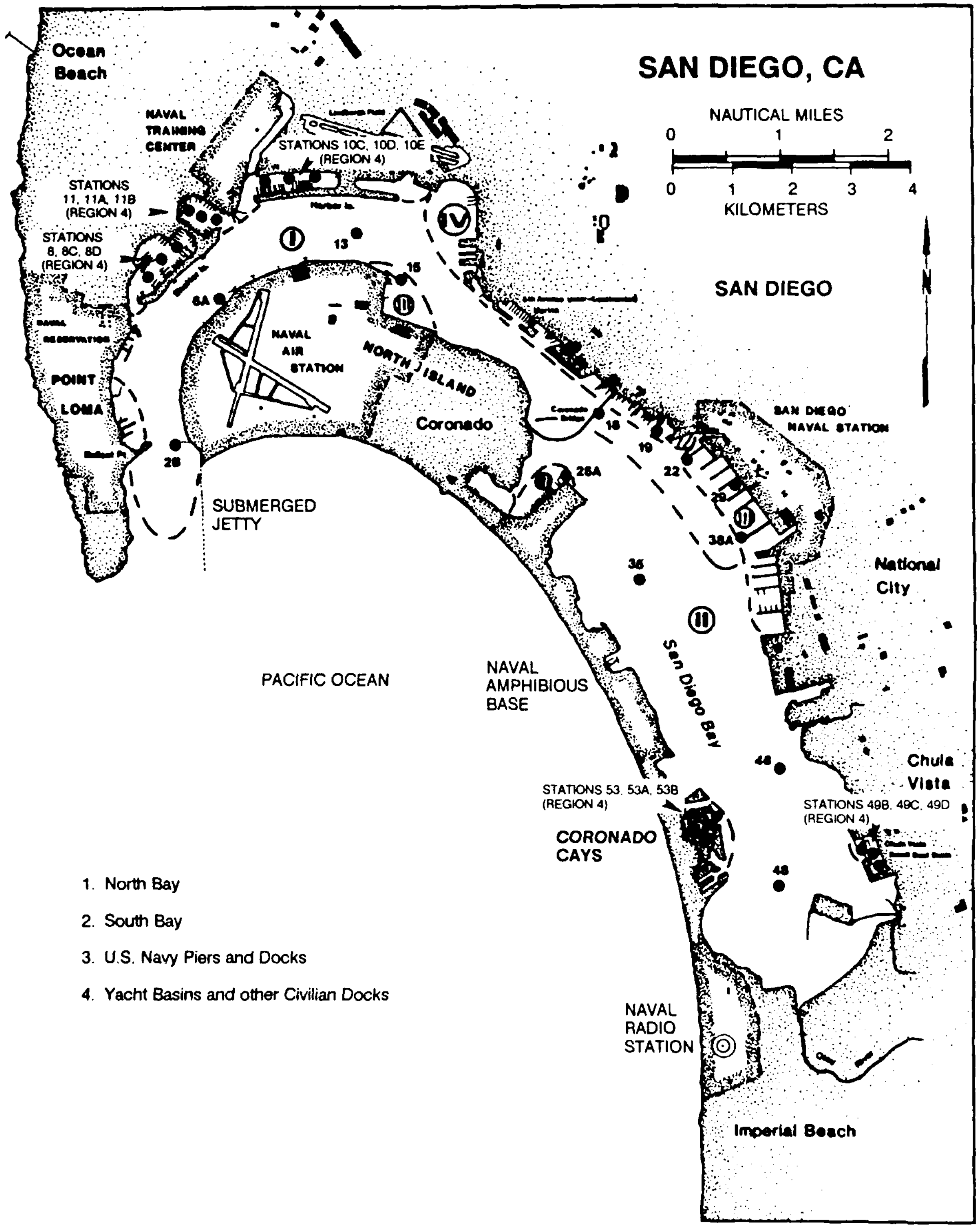
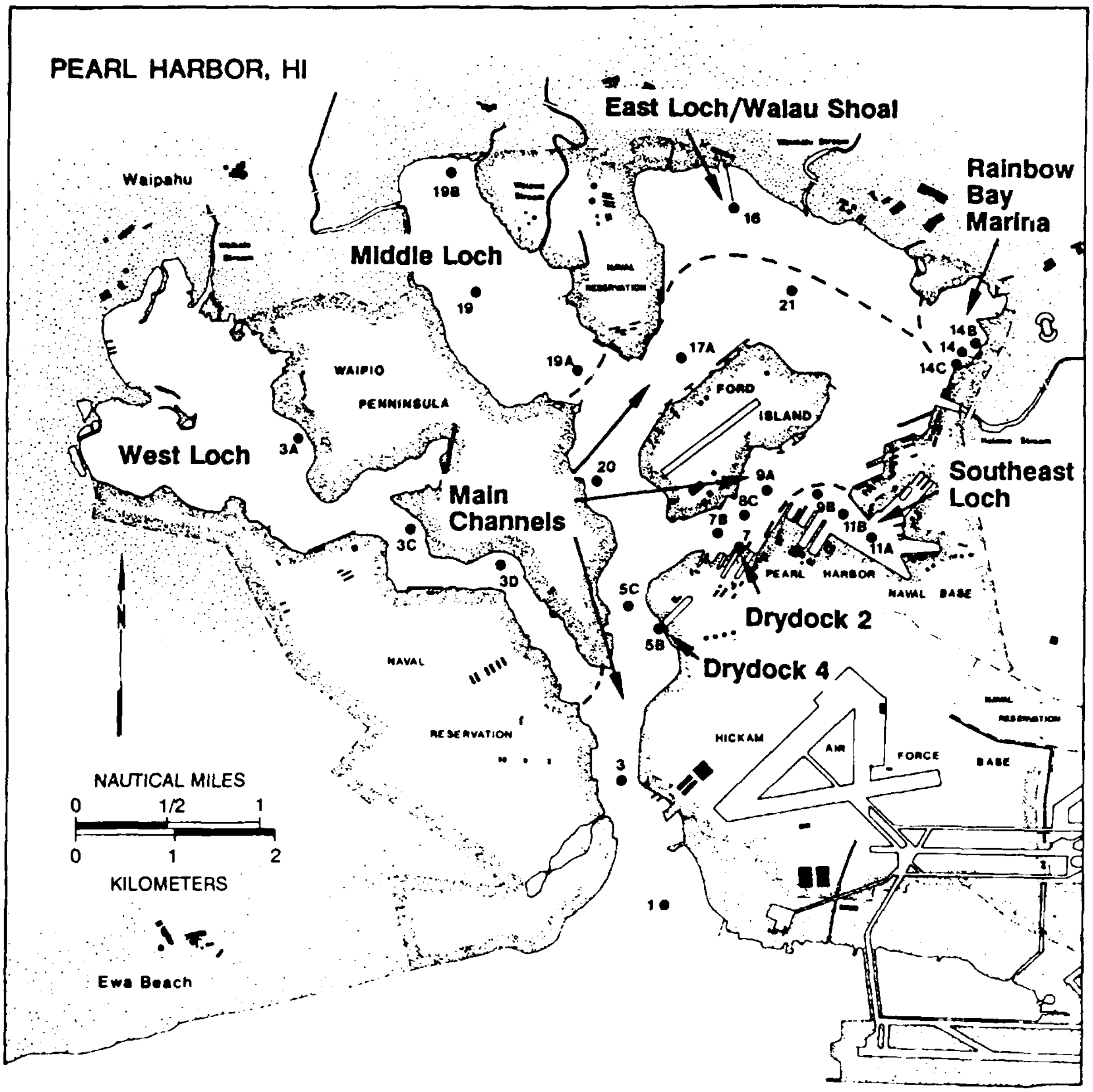


Figure 1. San Diego Bay sample regions.



PACIFIC OCEAN

Figure 2. Pearl Harbor regions and stations.

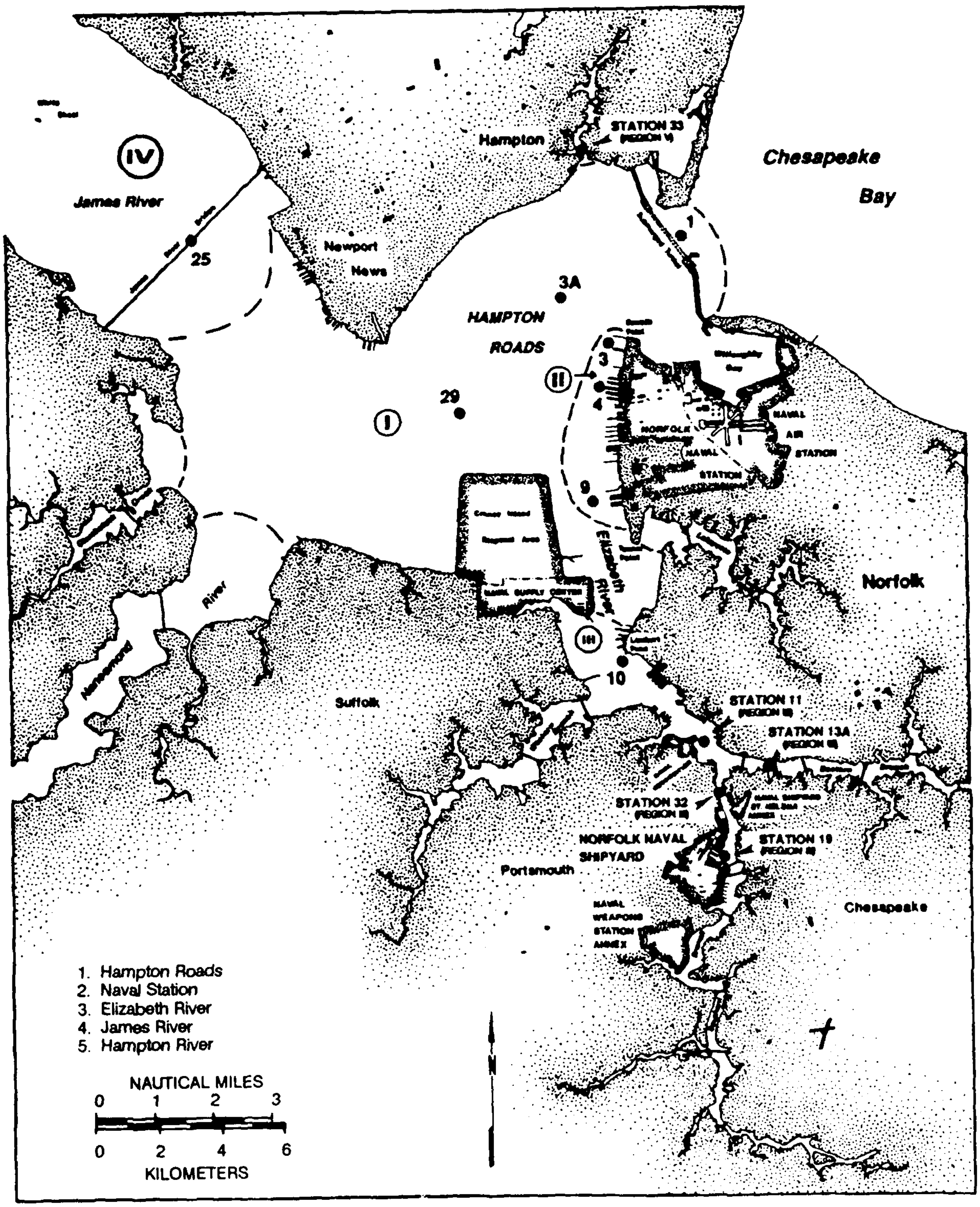


Figure 3. Norfolk sample regions.

coated with TBT antifouling paint. The Hampton Roads region is a well flushed region at the confluence of the James and Elizabeth Rivers receiving TBT inputs from various sources. A total of 415 surface- and deep-water samples were analyzed for TBT from the five regions studied.

Originally, individual stations within San Diego Bay, Norfolk, and Pearl Harbor were compared to characterize TBT concentrations in each harbor as well as event-specific effects (Grovhoug et al., 1987). The data from these stations were subsequently grouped into several harbor regions for analysis. The regional mean TBT concentrations were then examined rather than emphasizing a single station where the TBT concentration may vary widely. Large TBT concentration variability has been reported by Huggett et al. (1986), Clavell et al. (1986), and Stang et al. (1989), particularly at entrances to yacht harbors or berthing areas.

Significant interactions were found in San Diego Bay between station location and depth, and station location and tide (Seligman et al., 1986). Combining stations into regions and sampling at specific tidal stages and water depths enabled direct hypothesis testing using a simplified one-way analysis of variance (ANOVA). The stations within a region were considered as replicates and all individual samples collected at a particular station and time were pooled. Although resulting in reduced degrees of freedom, this strategy was necessary because between-station variability in a region often proved greater than within-station variability. It was possible to use samples as replicates in some regions of Pearl Harbor since ANOVA results indicated that stations within these regions were statistically similar. In Pearl Harbor, where a single station was located within a given region, samples were used as replicates.

Prior to analysis, data were examined for conformance to the ANOVA assumption of homogeneity of variance by use of the Levene's test. The data showed significant heteroscedasticity and were logarithmically transformed and rechecked prior to hypothesis testing by the use of two one-way ANOVA models. San Diego area data were tested for between-survey-period variability within harbor regions. Hawaii-area data were primarily tested for between-region variability within survey periods, but were also tested for between-survey-period variability. Data from Norfolk were examined for differences in TBT concentrations between survey periods within regions. Multiple range testing (Student-Newman Kuels test) determined which survey periods or regions had statistically comparable ($p = 0.05$) means. Values presented in figures are untransformed means that reflect the actual TBT concentrations.

At several stations, three collocated samples were collected at each depth to maintain sampling continuity with previous collection periods. During quarterly sampling, three samples were taken at each station and depth and were distributed throughout each region to expand spatial coverage. A one-way ANOVA test was used to compare variability between the two sampling procedures. No significant difference ($p = 0.33$) was found between the collocated sample collection and the collection of spatially separated samples at three stations selected from the North Bay region of San Diego Bay. Therefore, collocated and spatially separated samples were pooled to generate station means that were used to compare regional differences reported in this study.

The regional approach used for water TBT concentration data analysis was not considered entirely practical for the analysis of sediment TBT concentration data. While water bodies may be typified by circulation and use patterns, marine sediments may be less homogenous due to origins and activities such as dredging. Kram et al. (1989) identified differences in sediment grain size, clay mineralogy, and percent organic carbon in sediments from San Diego Bay, Pearl Harbor, Honolulu Harbor, and Norfolk, VA. These factors were shown to highly influence the degree of TBT adsorption by sediments (Kram et al., 1989). A recent study in Puget Sound, WA has documented significantly heterogenous sediment TBT distributions from site to site, as well as within a single site (Krone et al.,

1989). Differences in sediment TBT concentrations were, therefore, examined on a station by station basis using a one-way ANOVA where statistical comparisons were made over time. The data were not transformed since sample sizes were constant within and between sampling intervals.

FIELD PROCEDURES

All seawater samples collected during the monitoring surveys were obtained at one-half meter below the surface and at one meter above the bottom. Caution was exercised to avoid contamination of the water samples from the surface microlayer, which can exhibit high concentrations of butyltins (Maguire and Tkacz, 1987). In Hawaii, water samples were not collected at particular tidal conditions since tidal effects have been shown to be insignificant (Grovhoug et al., 1989). However, in San Diego Bay, water samples were collected during low slack tide as tidal effects have been shown to influence butyltin measurements in that embayment (Seligman et al., 1986). Statistical testing (ANOVA) of water TBT data from Norfolk showed no significant association with tidal state. Data from Norfolk reported in this study were collected at various tidal states. Samples were collected in 1-liter polycarbonate bottles and placed in ice within insulated storage chests until moved (within 8 hours) into a laboratory freezer for storage until analyzed.

Sediment samples were obtained with a stainless steel Van Veen grab sampler that collected approximately 3 to 4 liters of sediment. About 150 ml of sediment from the uppermost 2-cm layer of each grab was carefully removed and placed into 250-ml high-density polyethylene bottles. One to three samples were obtained at each station sampled, and the samples were then treated in the same manner as the water samples until analysis. Recently, sediment samples were collected with a smaller, spherical-steel grab sampler, rather than with the Van Veen grab.

Tissue samples were collected from local, naturally occurring bivalve populations rather than from transplanted specimens. This approach was taken, with its limitations in availability, because we believe that TBT tissue burdens in natural populations provide the most accurate environmental TBT data reflecting increases or decreases in water TBT values. In Pearl Harbor and Norfolk, oyster tissue samples were obtained by collecting 3 to 30 individuals (depending on available size), which were placed on ice until processed. The eastern oyster (*Crassostrea virginica*) or two species of saddle oysters (*Ostrea sandvicensis* and *O. hanleyana*) were collected from available intertidal substrata. In San Diego Bay, tissue samples were taken from an indigenous mussel species (*Mytilus edulis*), since oysters do not occur there. All bivalves were collected from approximately the same tidal level, near Mean Lower Low Water (MLLW). Lengths of the individual bivalve mollusks were recorded prior to removing the soft tissue. Individual soft tissues were excised using stainless steel and Teflon implements, and were pooled to obtain sufficient mass to provide three replicate samples at each station. The pooled tissues were placed in 85-ml polycarbonate centrifuge tubes and frozen until analyzed.

LABORATORY PROCEDURES

Water samples were collected in polycarbonate plastic 1-litre bottles that have previously been shown to be nonadsorptive to butyltins. These bottles have been recommended as a suitable container for water samples containing butyltins in a recent NOAA report addressing aquatic butyltin sampling and analysis (Dooley and Homer, 1983; Valkirs et al., 1986; Young et al., 1986). Storage of environmental water samples kept frozen in polycarbonate bottles for 4.3 months in our laboratory has shown no more than a 15 percent loss of the initial TBT concentration (unpublished data). This loss is consistent with the relative standard deviations of methods employing hydride derivatization for analysis of TBT in seawater (Valkirs et al., 1987).

When water samples were collected prior to 1987, detection limits were approximately 5 ng L^{-1}. Recent improvements in the quartz furnace design and silanization of the cryotrap used to collect butyltin hydrides have resulted in detection limits as low as 0.2 ng L^{-1}. The data reported in this study have, therefore, been qualified on the basis of similar detection limits. Data reported prior to 1987 were reviewed and presented if detection limitations were not approached. Values below detection limits, where no signal was apparent, were reported as zero, and were not used in summary statistics or for hypothesis testing. The analytical bias introduced by the elimination of these data points was considered low due to their paucity.

Several TBT measurements were made at or below 1 ng L^{-1}. These data were used in subsequent statistical analysis procedures since censoring the data set at very low concentrations would have removed available data. Others have commented that data should be used for analysis procedures even if values are below detection limits (Porter et al., 1988). We recently calculated our TBT limit of detection (LOD) and limit of quantification (LOQ) using procedures reported by the American Chemical Society committee on Environmental Improvement (1980, 1983). The LOD was 0.7 ng L^{-1} as tributyltin chloride and the LOQ was 2.4 ng L^{-1}. These values were representative of an average analysis session since the calibration curve slope was slightly above 7. Our calibration-curve-slope values typically range from 5 to 12. When LOD and LOQ values were calculated from an analysis session with a calibration curve slope of 11, the values were 0.2 ng L^{-1} and 0.6 ng L^{-1}, respectively. Additionally, the standard deviation of replicate analysis was approximately 20 percent of the mean in each session, which is consistent with replicate measurements at higher TBT concentrations. On a daily basis, very few TBT measurements are below the LOD.

Analysis of tissue and sediment sample extracts was performed by Grignard derivatization with hexylmagnesium bromide. Butyltin derivatives were separated and detected by gas chromatography and flame photometric detection. Samples were quantified by comparison of the analyte signal with the internal standard (tripentylhexyltin) response factors. Detection limits were in the range of 10 to 20 ng g^{-1} wet weight. Complete details of the analytical system and procedure used for water, tissue, and sediment analysis are reported in Stallard et al. (1989). All seawater, tissue, and sediment values reported in this study are reported as the respective butyltin chloride species. Measurements reported in this study were not corrected for recovery. In 66 of 76 samples collected from Pearl Harbor, San Diego Bay, and Chesapeake Bay, recovery of TBT added to samples (1 to 6 ng) exceeded 75 percent.

Whole unfiltered seawater was measured directly by hydride derivatization followed by purging and trapping the evolved hydrides. Tin hydrides are then volatilized and detected by hydrogen-flame atomic absorption spectroscopy (AAS) in a quartz burner. Studies by Valkirs et al. (1986, 1987) and Johnson et al. (1987) have shown that unfiltered seawater samples with low-particulate concentrations generally have very little (<5%) TBT associated with the particulate fraction. Thus, measurement of TBT in the dissolved phase and that available to hydride derivatization on particulates essentially accounts for very nearly all TBT present in an unfiltered seawater sample.

RESULTS OF MONITORING STUDIES

SAN DIEGO BAY

Water

A summary of mean TBT concentrations in surface- and bottom-water samples over 8 monitoring periods is provided in figures 4 and 5 for the four regions studied in San Diego Bay. Appendix A is a record of all individual water samples and their respective TBT concentrations summarized in figures 4 through 9. Surface water TBT values measured within five yacht harbors in San Diego Bay (Shelter Island, Commercial Basin, Harbor Island, Coronado Cays, and Chula Vista Marina) averaged 78 ng L-1 and ranged from 2.0 to 450 ng L^{-1} from the winter of 1986 to the summer of 1989. This region exhibited significant ($p = 0.001$) surface-water differences through time. Surface values during February 1986, October 1986, October 1987, and February 1988 were significantly higher than values recorded in April 1989. Mean surface values during October 1988, April 1989, and August 1989 were 26, 19 and 24 ng L^{-1}, respectively, but lower from the other periods, which ranged from 68 to 120 ng L^{-1} (figure 4). TBT surface-water means measured during January 1989 were higher than the October 1988, April 1989, and August 1989 sampling periods, and were apparently influenced by samples collected in Shelter Island yacht harbor.

The naval region had an overall mean surface-water TBT concentration of 8.0 ng L^{-1} and averaged from 0.9 to 22 ng L^{-1}. A significant reduction was seen in TBT concentration during April 1989 (3.5 ng L^{-1}) and August 1989 (4.7 ng L^{-1}) from levels measured during October 1987 (11 ng L^{-1}) and February 1988 (14 ng L^{-1}). TBT concentrations during the later two monitoring periods (3.5 and 4.7 ng L^{-1}, respectively) were not statistically different from values measured in October 1986, October 1988, or January 1989 (5.6-6.7 ng L^{-1}). Significant ($p = 0.004$) statistical trends in TBT concentrations were seen in the South Bay region as well. The mean TBT surface-water concentration for this area was 5.8 ng L^{-1} and ranged from 0.0 to 32 ng L^{-1}. Mean TBT values declined significantly from February 1988 values (9.9 ng L^{-1}) during April 1989 and August 1989 (1.6 and 1.3 ng L^{-1}). The North Bay region showed a surface-water TBT concentration range of 1.0 to 27 ng L^{-1}, with an overall mean of 7.9 ng L^{-1}. Significantly ($P = 0.002$) lower concentrations were found during the latest period in August 1989 than in October 1987, February 1988, or January 1989.

The TBT bottom-water concentration measured in the Yacht region was generally low, relative to the surface values and consistent with previous data for San Diego Bay reported by Seligman et al. (1986). TBT values significantly lower than those found in other periods were recorded during the April 1989 and August 1989 monitoring periods (figure 5). Bottom TBT concentrations were statistically similar in February 1986, October 1986, October 1987, February 1988, and January 1989. Significantly lower TBT concentrations were measured in bottom-water samples from the North Bay region during the October 1988, April 1989, and August 1989 monitoring periods. Bottom-water TBT concentrations were statistically similar during the October 1987, January 1989, and February 1988 sampling intervals with the highest values measured during the February 1988 period. Significant differences ($p = 0.005$) were found in bottom-water TBT concentrations measured in the South Bay region among the monitoring periods presented in figure 5. The highest bottom-water TBT concentrations were measured during the February 1988 monitoring period. TBT values in August 1989

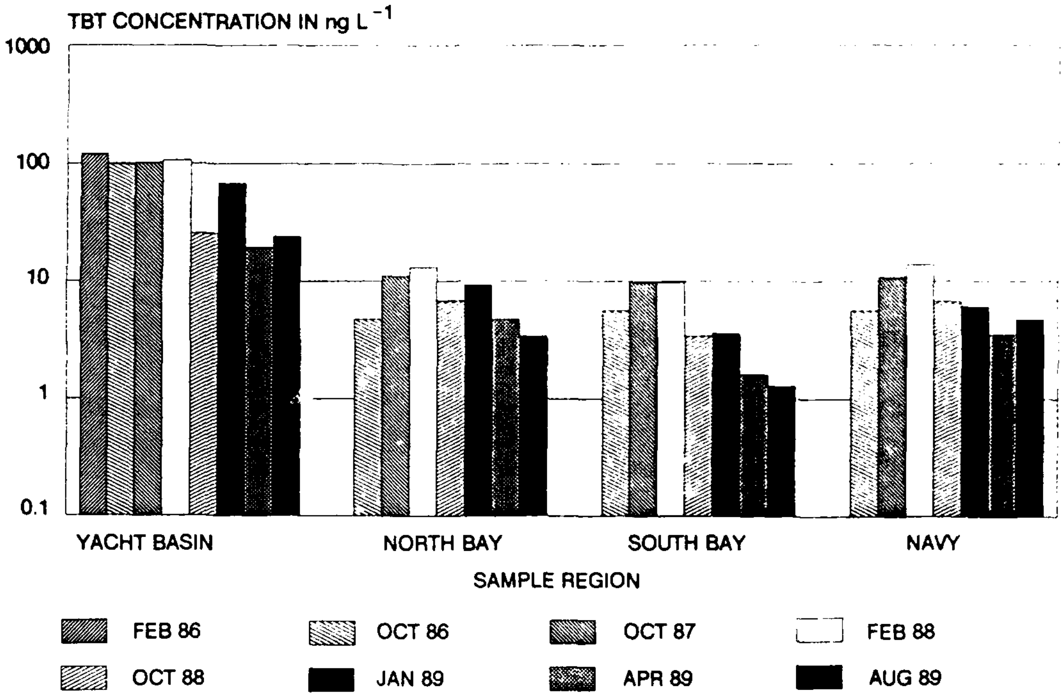


Figure 4. Mean regional surface-water TBT concentrations in San Diego Bay.

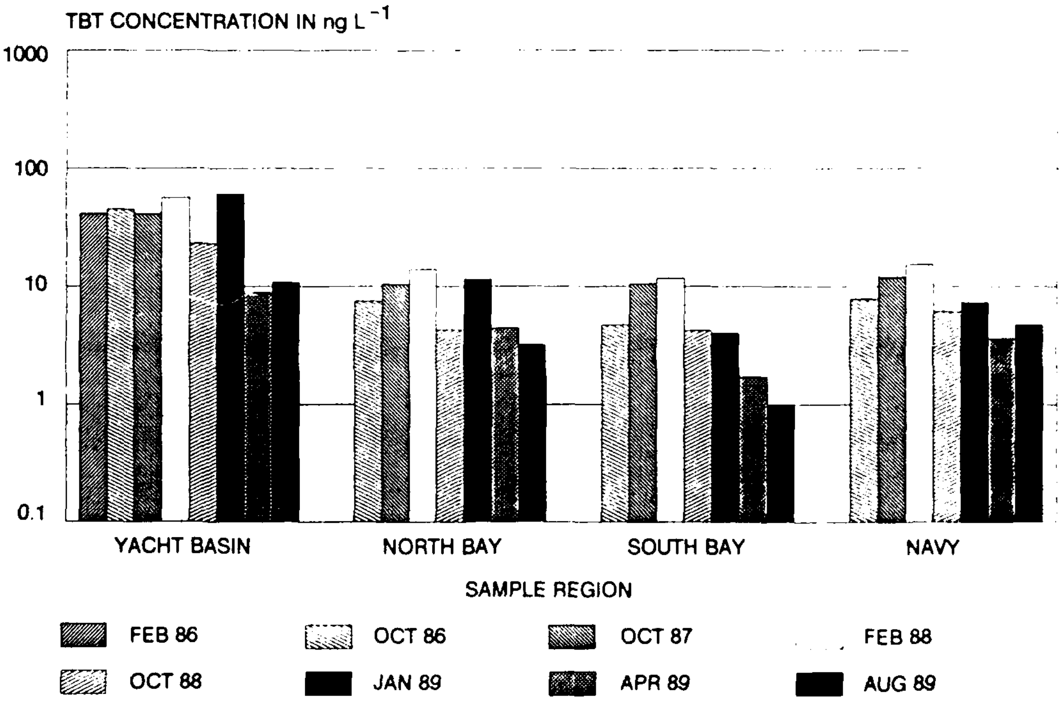


Figure 5. Mean regional bottom-water TBT concentrations in San Diego Bay.

were significantly lower than February 1988 values. In the Naval region a significant difference ($P = 0.0001$) in bottom water TBT concentrations was found among monitoring periods. Bottom-water TBT concentrations were statistically similar among the April 1989 and July 1989 periods and statistically lower than values measured during the February 1988 period.

Sediment

A summary of San Diego Bay sediment TBT concentrations by station is reported in table 1. Data from individual samples are summarized in Appendix A. Significant ($p = 0.05$) changes in sediment TBT concentrations over time were recorded in only 6 of 14 stations in San Diego Bay. Analysis of sediment samples collected from San Diego Bay indicated that TBT concentrations were highest in the Shelter Island, Commercial Basin, and Harbor Island yacht anchorages. The presence of high-sediment TBT concentrations in these areas is consistent with their size, large number of vessels, and vessel repair activities. Significant decreases in sediment TBT concentrations have not yet been seen in these areas in contrast to recent decreases in water TBT values. A significant decrease in sediment TBT concentrations was recorded at Naval region station 22 where values were previously similar to yacht harbor stations. TBT sediment concentrations were significantly lower ($p = 0.004$) during the July 1989 monitoring period than during the October 1988 monitoring period. In contrast, while a significant difference ($p = 0.0001$) in sediment TBT concentration was recorded at station 38 in the Naval region, the July 1989 monitoring period and the three preceding periods were statistically similar in the TBT concentrations measured. TBT concentrations measured during the February 1988 survey were significantly higher than those measured during the other monitoring periods.

Table 1. San Diego Bay mean TBT sediment concentrations (units are ng/g dry weight).

		Feb 88		Oct 88		Jan 89		Apr 89		Jul 89	
Station	Region	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL
02	North	3	1.7	3	12	3	70	3	33	3	34
04	Navy	3	57								
05	North	3	37	3	16	3	17	3	37	3	21
07	Yacht	3	80								
08	Yacht	3	96	3	97	3	120	3	90	3	74
10	Yacht	6	160	3	56	3	160	3	84	3	80
11	Yacht	3	690	3	1100	3	530	3	430	3	220
13	North	3	76	3	43	3	39	3	51	3	29
15	Navy	3	91								
16	Yacht	3	110								
18	North	3	78	3	53	3	64	3	68	3	28
19	Yacht	3	55								
21	Navy	3	190								
22	Navy	3	56	3	240	3	80	3	160	3	130
26	South	3	31								
26A	Navy	3	29								
26B	Yacht	3	56								
29	Navy	3	350								
33	North	3	38								
35	South					3	19	3	25	3	26
38	Navy	3	180	3	37	3	40	3	56	3	43
39	Navy										
42	South	3	36								
44	South	3	4.7								
46	South			3	6.7	3	8.7	3	24	3	22
48	South					3	7.7	3	16	3	20
49	Yacht			3	29	3	29	3	30	3	25
53	Yacht			3	15	3	19	3	45	3	31

Significant differences in sediment TBT concentrations over time were recorded at stations 35, 46, and 48 in the South Bay region, which exhibited an increase in sediment TBT concentration during the April 1989 and July 1989 monitoring periods over the two previous periods, although a significant increase ($p = 0.0049$) was determined only at station 48. At station 13 in the North Bay region, statistically similar sediment TBT values were exhibited during the April 1989, January 1989, and October 1988 monitoring periods with a significantly higher ($p = 0.0003$) sediment TBT concentration recorded during the February 1988 monitoring period. TBT values recorded in the latest survey (July 1989) were lower, although statistically similar to the October 1988 and January 1989 periods.

Tissue

TBT concentrations measured in the bay mussel *Mytilus edulis*, between October 1986 and July 1989, ranged from 32 to 2100 ng g-1 (survey means for each station are summarized in table 2). The highest concentrations were generally found in October 1987 and February 1988, and have since been decreasing at all stations with the exception of station 22. A series of one-way ANOVA tests of individual stations show a significant decrease in tissue concentrations between February 1988 and July 1989.

Table 2. San Diego Bay mean TBT tissue concentrations (units are ng/g wet weight).

		Oct 86		Oct 87		Feb 88		Oct 88		Jan 89		Apr 89		Jul 89	
Station	Region	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL
02	North	3	100	3	120	3	140	3	53	3	32	3	57	3	53
06	North	3	110	3	230	3	220	3	150	3	110	3	110	3	110
07	Yacht	3	690	3	1600	3	960	3	1200	3	890				
10	Yacht	3	670					3	420	3	260	3	290	3	210
11	Yacht			3	830	3	530								
15	Navy	3	220	3	220	3	490	3	170	3	240	3	210	3	110
16	Yacht									3	840	3	820	3	380
18	North	3	360	3	330	3	380	3	140	3	320	3	220		
19	Yacht					3	500								
22	Navy			3	360			3	200	3	390	3	170	3	1700
26	South	3	200	3	190	3	240	3	100	3	160	3	110	3	59
37	Navy					3	290								
38	Navy	3	220							3	190				
40	Navy					3	380								
44	South			3	220	3	390			3	95	3	51	3	59
53	Yacht	3	820	3	1400	3	2100	3	530	3	550	3	320	3	290

Yacht basin stations generally exhibited the highest tissue TBT concentrations. Shelter Island (station 07) reached a high of 1600 ng g^{-1} in October 1987, while the Coronado Cays (station 53) reached the maximum level measured, 2100 ng g^{-1}, in February 1988. Commercial Basin (station 11), when measured, reached a maximum value of 830 ng g^{-1} in October 1987. In recent surveys, several of the yacht basins have not been sampled because no mussels could be found. The Fifth Avenue Marina (station 16), however, has exhibited tissue concentrations of 840 and 820 ng g^{-1} during surveys in January 1989 and April 1989, respectively.

In contrast to the yacht basin stations, station 2 at the mouth of the bay never exceeded a mean tissue concentration of 140 ng g^{-1} and, most recently, exhibited a concentration of 53 ng g^{-1}. Tissues at station 18, at the Coronado Bridge in midchannel, contained 220 ng g^{-1} TBT during the latest survey in April, 1989. The Naval Station at 32nd Street exhibited tissue concentrations of 1700 ng g^{-1} at station 22 and 59 ng g^{-1} at station 26. The tissue TBT concentration of 1700 ng g^{-1} recorded at sta-

tion 22 in July 1989 represents an anomalous high value for this area. It is possible that the presence of a large oil tanker (the *Exxon Valdez*) awaiting repairs at a nearby shipyard approximately 100 m to the north of station 22 may have influenced uptake of TBT by mussels at station 22. Large commercial vessels are commonly painted with TBT antifouling paint. The South Bay station (44) has shown tissue levels of 51 and 59 ng g^{-1} in April and July 1989, respectively.

Size and growth rate of the individual has been shown to affect the concentration of TBT in tissues (Salazar & Salazar, 1990). Mussels were generally of the same size class, although the scarcity of individuals at some yacht basin stations required the collection of any size to collect enough tissue for analysis. Before comparing tissue burdens between time intervals, a one-way ANOVA model was run testing size as a covariate. No statistical differences were found in the individuals collected from these locations.

PEARL HARBOR

Water

A summary of mean TBT concentrations for surface- and bottom-water samples collected from the 7 regions in Pearl Harbor over 10 monitoring periods is given in figures 6 and 7. Individual sample data are recorded in Appendix A. Comparisons among regions in the Pearl Harbor area were made using the one-way ANOVA model for each time period. During the initial monitoring survey performed in April 1986, detectable levels of TBT were recorded from surface-water samples obtained in Southeast Loch and Rainbow Marina. The remaining regions in Pearl Harbor contained no detectable tributyltin. The lowest TBT levels during February 1987 were observed in West Loch and Middle Loch. The surface TBT concentrations in West Loch were significantly lower than those measured at Drydock #2, Southeast Loch, and Rainbow Marina during February 1987. Southeast Loch exhibited a mean-surface-water TBT concentration of 15 ng L^{-1}. This concentration was not, however, significantly different from concentrations measured in regions other than West Loch. All other areas in Pearl Harbor averaged surface TBT concentrations between 3.0 and 9.0 ng L^{-1}. Bottom-water concentrations for all regions averaged 7.0 ng L^{-1} or less, and were not significantly different between regions. During April 1987, TBT concentrations in Pearl Harbor surface waters varied from 3.4 ng L^{-1} in West Loch to 27 ng L^{-1} in Rainbow Marina. Differences between the regional surface values were not significant. Bottom-water samples during this period averaged 1.2 to 25 ng L^{-1} TBT and significant differences were found between the regional bottom-water values. Multiple range testing indicated that bottom water from Drydock #2 exhibited the highest TBT concentration, which was statistically similar to bottom water from Southeast Loch and Rainbow Marina.

Except for Rainbow Marina, surface-water samples collected during the July 1987 monitoring effort exhibited lower TBT concentrations throughout all harbor regions than during April. Significantly lower-surface TBT concentrations were found at Drydock #2. The high levels seen in Rainbow Marina surface waters during July 1987 (130 ng L^{-1}) coincided with the presence of two large nonresident yachts at this time. No other region in the harbor showed similarly elevated-water TBT concentrations. Both of the visiting yachts had been recently painted with TBT paint (personal communication with owners). During the October 1987 survey, the highest overall surface TBT levels were again found in Rainbow Marina and were significantly different from the other regions in Pearl Harbor. Although lower than the levels encountered during the survey of July 1987, the surface-water TBT concentration at Rainbow Marina remained about 10 times that seen in Southeast Loch. In January and October 1988, Rainbow Marina water samples continued to exhibit a surface-water mean TBT concentration several times higher and significantly different from other regions in Pearl Harbor.

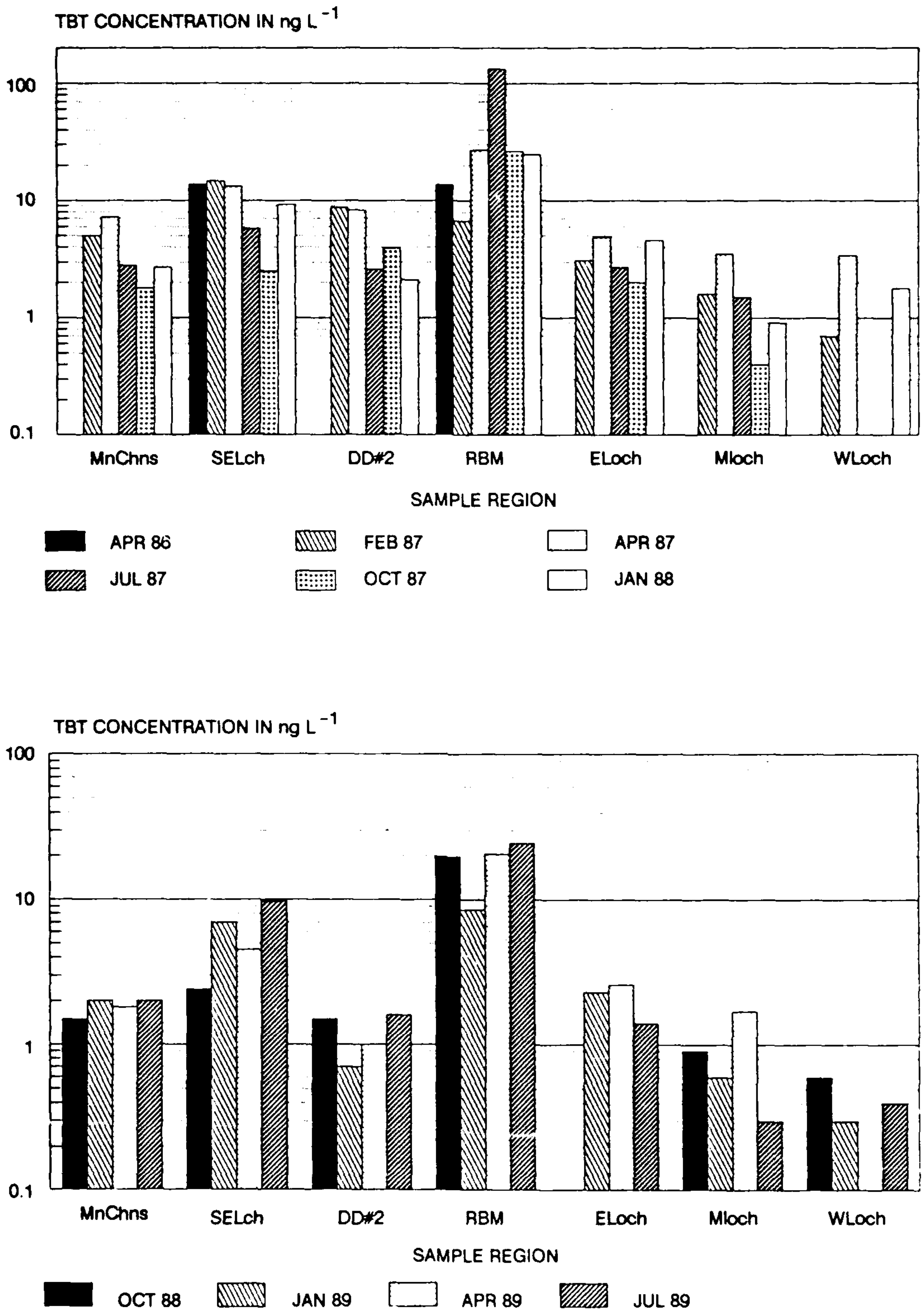


Figure 6. Mean regional surface-water TBT concentrations in Pearl Harbor.

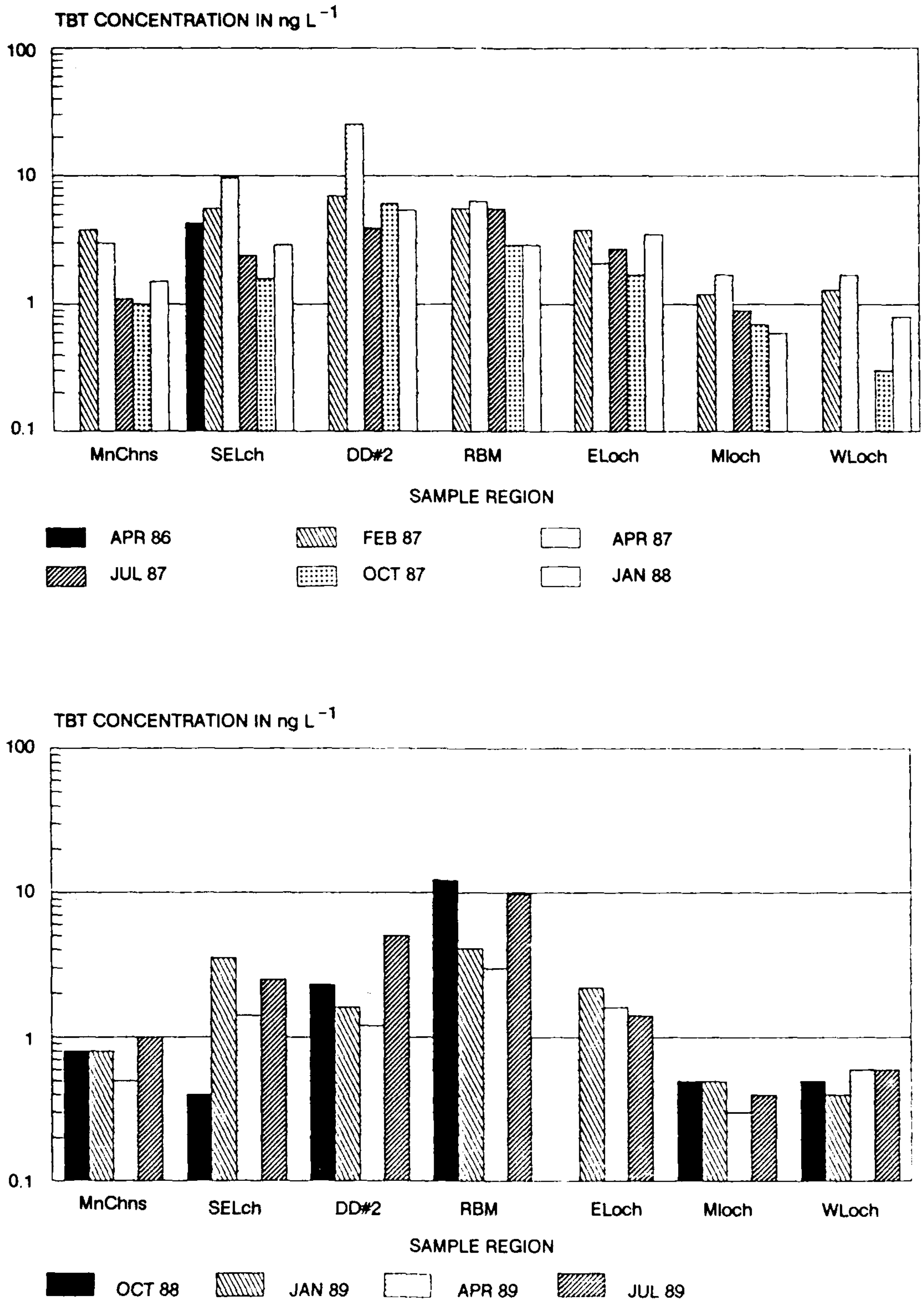


Figure 7. Mean regional bottom-water TBT concentrations in Pearl Harbor.

Both drydock stations showed no significant change in water-column TBT concentrations from October 1987 levels. During the January 1989 survey, the mean surface-water TBT concentration in Rainbow Marina was significantly higher than the West Loch, Middle Loch, and Drydock #2 regions, but similar to the remaining regions. During the April 1989 monitoring period, the surface-water TBT concentration was highest in Rainbow Marina (20 ng L^{-1}). All regional TBT concentrations were statistically similar during this period with the exception of West Loch, which was significantly lower with no measurable TBT present. In July 1989, the surface TBT concentration was again highest in Rainbow Marina (25 ng L^{-1}), and was significantly higher than the West Loch or Middle Loch regions.

In addition to testing differences between regions during a given monitoring period, regions were also examined over time to determine if significantly different TBT concentrations were measurable in water samples collected. Samples collected in the East Loch region in July 1989 were significantly lower than those collected in April 1987 and January 1988 when TBT concentrations were highest (figure 6). The TBT surface-water concentration in Drydock #2 was significantly higher during the February and April 1987 periods than during the other sampling intervals. These periods corresponded approximately with the TBT-AF paint application and drydock operations of two of the three U.S. Navy test ships painted under the Pearl Harbor Case Study (Grovhoug et al., 1989).

Tributyltin loading factors in Pearl Harbor were based on three factors: (1) in-situ release rate measurements directly from the hulls of test ships, (2) the number of test ships berthed in Pearl Harbor, and (3) the actual duration of berthing in the Southeast Loch.

During October 1987 and October 1988, surface TBT concentrations in Southeast Loch were lower and significantly different from concentrations measured in several other monitoring periods (April 1986, February 1987, April 1987, January 1988, and July 1989). During these two sampling periods, the TBT loading factor was at the lowest level seen during these series of surveys (Grovhoug, et al., 1989). No significant differences were seen in water samples collected from the West Loch region, indicating that this region was unaffected by drydock operations and the level of activity in the main berthing areas.

Rainbow marina exhibited statistically similar surface TBT concentrations during all monitoring periods with the exception of the July 1987 period when a significant difference was found. During the July 1987 interval, the TBT concentration was measured at 130 ng L^{-1} as a probable consequence of the presence of pleasure vessels recently painted with TBT antifouling paint. The Middle Loch region had significantly higher surface-water TBT concentrations during the April 1987 monitoring period than during the January 1989 and July 1989 periods. The surface-water TBT concentration in the Channels region was significantly higher in April 1987 than in October 1987, 1988, January 1989, April 1989, and July 1989.

Sediment

Sediment TBT concentrations are summarized in table 3 and data from individual samples are recorded in Appendix A. Mean regional sediment TBT values in April 1986 ranged from 16 to 420 ng g, with the highest levels recorded from the Southeast Loch region, and the lowest from the West Loch. In February 1987, sediment TBT concentrations ranged from 10 to 2400 ng g^{-1}. Drydock #2 had the highest sediment TBT concentration (2400 ng g^{-1}). Sediment samples from Pearl Harbor during April 1987 exhibited mean TBT concentrations from 23 to 4500 ng g^{-1}. The most elevated levels were observed at Drydock #2. During January 1988, sediment samples from Pearl Harbor exhibited mean TBT concentrations ranging from 24 to 1900 ng g^{-1}, the most elevated levels again being observed at Drydock #2. Sediments from the North Channel region included samples collected

adjacent to a U.S. Army Heavy Boat facility at Ford Island. These samples contributed to the North Channel's mean regional TBT concentration of 1000 ng g^{-1}. In January 1989, regional mean sediment values ranged from 26 to 2000 ng g^{-1}. The highest concentration measured was from samples collected at Drydock #2.

Table 3. Pearl Harbor sediment concentrations (units are ng/g dry weight).

	Apr 86		Feb 87		Apr 87		Jan 88		Jan 89	
Region	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL
Entrance Channel	6	75	6	52	6	73	9	24	5	26
West Loch	3	16	3	10	3	23	6	24	3	42
South Channel	3	60	15	420	15	180	6	100	5	99
Drydock #2			3	2400	3	4500	3	1900	3	2000
Southeast Loch	21	420	15	360	15	420	9	230	3	220
North Channel			6	21	6	26	9	1000	10	49
Middle Loch	3	48			3	120	6	27	3	87
Rainbow Marina	3	66	3	33	3	59	3	72	3	410
Waiau Shoal	3	28	3	15	3	41	3	32	3	40
Drydock #4			3	150	3	240	3	350	3	260

Since sediments may vary a great deal in their physical characteristics (Kram et al., 1989), the regional approach of statistical analysis of data was not applied. Differences among sediment TBT values from single stations over time were examined to determine if significant differences existed. A one way ANOVA model testing differences in sediment TBT concentration over time at a specific monitoring station indicated that significant ($p = 0.05$) differences were present at only four stations in Pearl Harbor from February 1987 to January 1989. Three of the four stations were removed from regions where painting activity or ship presence were TBT exposure factors. Sediment TBT concentrations were significantly higher at one station (11) in Southeast Loch during February 1987 than during January 1988 and January 1989.

Tissue

A summary of TBT concentrations in oyster tissues is given in table 4. Individual sample data are recorded in Appendix A. Oyster-tissue samples from Pearl Harbor collected in April 1986 exhibited tributyltin levels ranging from undetectable to 350 ng g^{-1}. The highest TBT levels were observed in samples from Rainbow Marina. Oyster-tissue samples, collected from six sampling regions in Pearl Harbor during the February 1987 survey, exhibited mean tributyltin concentrations ranging from 64 to 360 ng g^{-1} wet weight. Tissues from Rainbow Marina exhibited the highest mean TBT concentration observed during this survey. In July 1987, oyster tissues were collected from West Loch, Drydock #2, and from McGrew Point across Aiea Bay from Rainbow Marina (the oyster population at the regular Rainbow Marina sample station was severely depleted at this time). Tributyltin levels in tissue samples ranged from 20 to 63 ng g^{-1}. By January 1988, the regular Rainbow Marina sample station still did not show any signs of appreciable oyster population recovery. Oyster samples from McGrew Point exhibited a mean TBT level three times greater than samples collected from the same area six months earlier. Tributyltin levels in tissue samples averaged 180 ng g^{-1}. Oyster populations in the West Loch region were observed to be abundant and apparently healthy.

Table 4. Pearl Harbor tissue concentrations (units are ng/g wet weight).

Station	Survey	Species	N	TBTCL
03	Jan 89	*C. virginica*	3	38
03A	Apr 86	*C. virginica*	5	70
	Feb 87	*C. virginica*	3	70
	Jul 87	*C. virginica*	3	20
	Jan 88	*C. virginica*	3	25
	Jan 89	*C. virginica*	3	11
05A	Apr 86	C. virginica	5	80
	Feb 87	*Ostrea* spp.	3	64
06	Feb 87	*Ostrea* spp.	3	110
07	Feb 87	*Ostrea* spp.	3	240
	Jul 87	*Ostrea* spp.	3	63
	Jan 88	*Ostrea* spp.	3	90
	Jan 89	*C. virginica*	3	65
11B	Jan 89	*C. virginica*	3	190
14	Jan 89	*C. virginica*	3	280
14A	Jul 87	*C. virginica*	3	60
	Jan 88	*C. virginica*	3	180
14B	Apr 86	*C. virginica*	3	350
	Jan 88	*Ostrea* spp.	3	360
16	Feb 87	*Ostrea* spp.	3	160
	Jan 88	*C. virginica*	3	140
	Jan 89	*C. virginica*	3	45

A series of one-way ANOVAs testing tissue concentrations between surveys at each station individually indicated statistical differences in time at three stations. Minor differences in tissue TBT concentrations were seen at station 3A during monitoring periods following 1986 and 1987 where the significantly highest TBT concentrations were recorded, although values were low during all the collection periods. The same temporal pattern was seen at station 7 near the shipyard after February 1987. Lower TBT values recorded at station 7 may reflect the absence of TBT paint application during periods approximating recent surveys. Tissue concentrations at station 16 have significantly decreased with the lowest concentration recorded during the latest (January 1989) survey.

NORFOLK

Water

Mean-surface and bottom-water TBT concentrations from samples collected from five regions over five monitoring periods are summarized in figures 8 and 9. Data from individual samples are recorded in Appendix A. Significant differences between surface- and bottom-water TBT concentrations were found in only 5 of 22 comparisons. Therefore, we focused our analysis on TBT concentrations in surface-water samples. Surface-water TBT values have decreased or remained very low in the five regions shown in figure 8 during the last two monitoring periods. A similar trend toward decreasing TBT concentrations was seen in bottom-water samples (figure 9).

The Hampton Roads region exhibited a significant decrease in surface-water TBT concentrations during the April and July 1989 surveys from previous values recorded during the October 1988 and January 1989 periods. In October 1988 and January 1989, TBT surface values were 5.4 and 5.0 ng L^{-1}, respectively. During the April and July 1989 monitoring periods, TBT concentrations had decreased to 0.9 ng L^{-1}. Significant decreases in surface-water TBT concentrations were also seen in

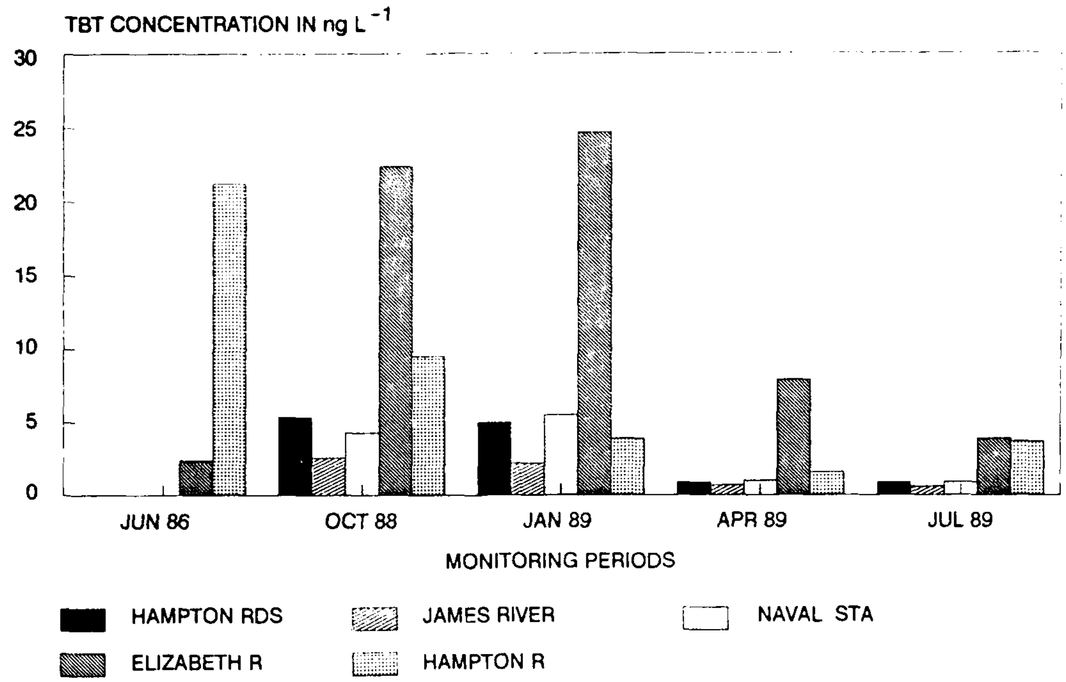


Figure 8. Mean regional surface-water TBT concentrations in Norfolk, VA.

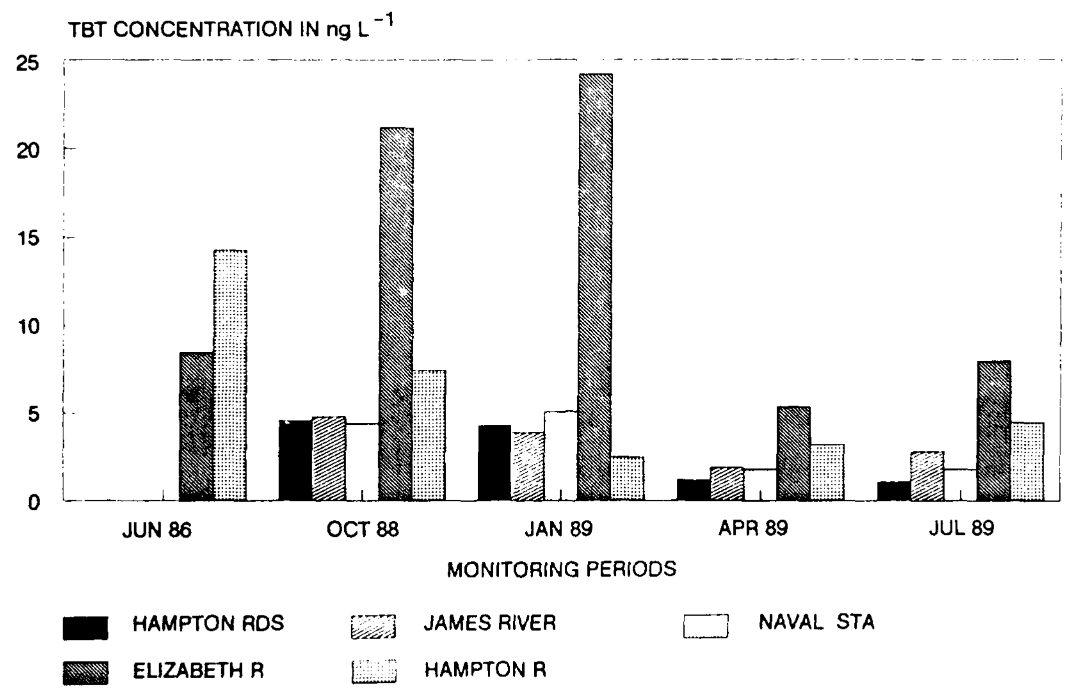


Figure 9. Mean regional bottom-water TBT concentrations in Norfolk, VA.

the Naval Station region during the April and July monitoring periods from those recorded during the October 1988 and January 1989 sampling intervals. TBT concentrations during October 1988 and January 1989 were 4.3 and 5.5 ng L^{-1} respectively. During the April and July 1989 monitoring periods, concentrations had decreased to 1.0 and 0.9 ng L^{-1}.

Surface TBT values were statistically similar in the Elizabeth River during the June 1986 period and the April and July 1989 monitoring periods (2.4 to 7.9 ng L). Significantly higher values (22 to 25 ng L^{-1}) were recorded during intermediate periods in October and January 1989. The Hampton River region exhibited significantly higher surface TBT values during the June 1986 and October 1988 periods (21 and 9.5 ng L^{-1}) from the later monitoring intervals, which ranged from 1.6 to 3.9 ng L^{-1}. The James River region was characterized by very low TBT surface mean values that were always less than 3 ng L^{-1} and were not significantly different among monitoring periods.

Tissue

Tissue-sample TBT concentrations from oysters and some mussels collected in Norfolk Harbor during June 1986, October 1988, and April 1989 are summarized in table 5. Data from individual samples are recorded in Appendix A. Few measurements of tissue TBT concentrations are currently available, therefore a statistical treatment of the data was not applied. A continuous decrease in tissue TBT concentrations has been observed, however, at station 33 in the Hampton River area indicating that decreasing water TBT concentrations may be the causative factor.

Table 5. Norfolk Harbor mean TBT sediment concentrations (units are ng/g wet weight).

Station	Region	Jan 89 N	Jan 89 TBTCL	Apr 89 N	Apr 89 TBTCL	Jul 89 N	Jul 89 TBTCL
01	Hampton Roads			1	110		
03	Naval Station			3	200		
03B	Naval Station	3	140				
11	Elizabeth R.	2	1200				
13A	Elizabeth R.	3	5200				
15	Elizabeth R.	3	520				
17A	Elizabeth R.	3	890*				
21	Elizabeth R.	3	550				
25	James River			3	240	1	140
33	Hampton River	3	3500	3	620	1	420
33	Hampton River			1	330*	1	360*
36	James River	3	290				
37	Lafayette R.	3	520				

*Tissues collected from the ribbed mussel *Guekensia demissum*. All other tissues are from the oyster *Crassostrea vriginica*.

Sediment

Sediment data for Norfolk Harbor are summarized in table 6. Data from individual samples are recorded in Appendix A. Since data from several periods are not yet available, statistical analysis has not been performed. The data do, however, indicate that sediment TBT concentrations have decreased at several stations in the Elizabeth River region by approximately 50 percent in some instances.

Table 6. Norfolk Harbor mean TBT sediment concentrations (units are ng/g dry weight).

		Oct 88		Apr 89	
Station	Region	N	TBTCL	N	TBTCL
01	Hampton Roads	3	12	3	22
03	Naval Station	3	60	3	32
03A	Naval Station	3	11	3	23
04	Naval Station	3	89	3	75
09	Naval Station	3	67	3	74
10	Elizabeth R.	3	44	3	25
11	Elizabeth R.	3	900	3	470
19	Elizabeth R.	3	1400	3	890
25	James River	3	21	3	47
29	Hampton Roads	3	14	3	91
32	Elizabeth R.	3	2900	3	1900
33	Hampton River	3	14	3	35

DISCUSSION

REGIONAL PATTERNS AND TRENDS

San Diego Bay

An examination of the data collected before and after restrictive-use legislation was passed by the state of California indicates that surface TBT levels have significantly decreased in the yacht harbor region. In the South Bay, North Bay and Naval regions, surface TBT values have decreased significantly (figure 4). More recent surveys confirm this trend. While significant decreases in surface TBT values have occurred in all regions recently, the number of occupied boat spaces has increased in San Diego Bay from 6373 in 1986, to 7190 in 1988, and to 7425 in 1989 (data compiled by San Diego Harbor Police). A high degree of variability in TBT measurements in a given area, and particularly near yacht harbors and shipyards, had been reported previously (Huggett et al., 1986; Clavell et al., 1986; Seligman et al., 1987; Stang et al., 1989) and must be anticipated in such areas. However, the substantial decrease in TBT values seen in three of four monitoring periods after restrictive use legislation was enacted in January of 1988 strongly suggests that TBT levels have significantly decreased as a consequence. Similar observations were made by Alzieu et al. (1986) in Arcachon Bay, France, three years after initiating restrictive TBT paint-use legislation that was nearly identical to that adopted by California. Tin levels in areas of organotin input to Arcachon Bay were five to ten times lower in 1985 than those found in 1982. Further quarterly monitoring will continue and likely confirm the trend toward decreasing TBT concentrations in San Diego Bay.

The significant decreases in surface TBT concentrations seen in the Yacht Harbor region have been reflected in the other regions of San Diego Bay as well. Significant reductions in surface TBT concentrations were seen during the last two 1989 monitoring surveys. We assume that pleasure-craft activity is a major source of TBT in San Diego Bay, although significant inputs are also provided by large commercial craft, vessel repair, and maintenance activities. The North Bay region is exposed directly to the three largest yacht harbors in San Diego Bay, as well as to commercial vessel repair facilities. The presence of these sources and the high-current velocities and flushing characteristics undoubtedly contribute to the variable TBT levels seen in the North Bay region.

A significant reduction in the surface TBT concentration was seen in the South Bay region where TBT concentrations decreased during the October 1988 to July 1989 monitoring periods from previous levels (figure 4), while the number of occupied boat spaces increased from 1104 in 1987 to 1670 in 1989. The addition of more sampling stations in the South Bay region will permit testing for differences in TBT concentrations between sampling periods with a greater degree of freedom. This will likely further confirm future decreases in TBT concentrations in this region.

Significant reductions in bottom-water TBT concentrations were seen in the Yacht and Naval Station regions during the same monitoring periods where significant reductions were recorded in surface waters. The highest TBT concentrations measured in bottom-water samples were recorded during the February 1988 monitoring period in all regions in agreement with surface-water values from the Naval, North and South Bay regions. The close similarity between decreases in TBT values during given periods and the highest values recorded in surface- and bottom-water samples may be due to increases in occupied boat spaces prior to restrictions on use of TBT paints. The significant decreases in TBT concentrations observed in surface- and bottom-water samples at the end of 1988 and throughout 1989 seem to reflect a decrease in the use of TBT antifouling paints on pleasure craft in accordance with

state and federal restrictions on use. In the absence of restrictions on use, increases in the number of occupied boat spaces in 1988 and 1989 would likely have led to similar TBT concentrations such as those during the February 1988 monitoring period (figures 4 and 5).

Sediment TBT concentrations in San Diego Bay did not reflect recent decreases in water-column values and were variable among stations over time. It is likely that these sediments will tend to strongly adsorb TBT and slowly release TBT to overlying water since the silt plus clay percentages (36.7 to 92.4 percent) and the expandable minerals percentages (32 to 41) are relatively high in the clay fraction (Kram et al., 1989). A strong linear increase in sediment TBT adsorption capacity with increasing percent clay and percent clay plus silt has been demonstrated by Kram et al. (1989) with San Diego Bay sediments. Sediments from the yacht harbors selected for monitoring were shown to possess low-to-intermediate ability to desorb TBT in relation to their percent clay silt fractions and expandable clay mineral index in most cases (Kram et al., 1989).

Stations located in South San Diego Bay have similar physical characteristics to the yacht harbor stations and were shown to have a high affinity for TBT adsorption (Kram et al., 1989). Under these circumstances, no significant loss of TBT over time would be expected. No significant decrease in South Bay sediment TBT concentrations was seen at stations 35, 46, and 48 in agreement with the sediment physical characteristics and overlying water TBT concentrations measured over time. Although water TBT concentrations did decrease recently, concentrations have remained relatively low. Increases in the TBT sediment concentration at stations 48, 46, and 35 during the most recent monitoring period (July 1989) may have been influenced by sampling heterogeneity in the absence of an apparent cause for an increase. Since sediments are collected in areas that are located in open water bodies and not identified clearly by a fixed marker, some variability in site location during a given interval may contribute to variability in TBT concentrations measured.

During some monitoring periods, significant changes in sediment TBT concentrations in stations 22 and 38 were not closely associated with overlying bottom-water TBT concentrations. Additionally, the data exhibited contradictory trends in sediment TBT concentrations between the stations. During the February 1988 monitoring period, when bottom-water TBT concentrations were highest in the naval region, sediment TBT values were significantly lower at station 22 from those measured during the other monitoring periods. At station 38, sediment TBT values were significantly higher in February 1988 than those recorded during the other monitoring periods. During the most recent monitoring period (July 1989), sediment TBT values had decreased from the three previous periods at station 22, while an increase was seen at station 38 from January 1989 and October 1988 values (table 1). Stations 22 and 38 are located near fixed, well defined references and are in an area that has similar sediment physical characteristics with respect to percent organic carbon and sediment grain-size content (Kram et al., 1989). Thus, sampling heterogeneity in San Diego Bay would not necessarily contribute to variability in TBT measurements as much as might be the case in south bay stations.

A significantly higher ($p = 0.0003$) sediment TBT concentration was recorded at station 13 during the February 1988 monitoring period compared to later periods. Sediment data from this station were similar in their distribution over time to station 38 with the exception of the July 1989 survey. Sediments from station 13 represent another area where TBT concentrations did not consistently reflect changes in bottom water TBT concentrations.

The variable sediment TBT concentrations measured within stations over time and among stations complicate prediction of trends in TBT sediment values. TBT profiles in sediments in San Diego Bay have not clearly followed water concentrations and likely reflect the complex and variable sediment composition encountered throughout the bay. While some agreement in sediment TBT concentrations was found among stations sampled over time in a given area, other data are contradictory. The utility

of measuring TBT in San Diego Bay sediments may be limited to reporting the concentration at a given station at a specific time. Little predictive capability is currently possible due to sample heterogeneity and complex physical characteristics. Continued quarterly monitoring will contribute additional sediment TBT data that may identify trends and permit some prediction of future sediment TBT concentrations.

Tributyltin concentrations in the tissues of *Mytilus edulis* have generally been declining in San Diego Bay since February 1988. Prior to that survey, tissue concentrations gradually increased. This trend follows that of the surface-water concentrations (figure 4) and suggests natural mussel population tissue TBT burdens are reasonable indicators of ambient TBT water concentration when values are available from organisms of comparable age, size class, and history. Tissue concentrations for transplanted mussels in San Diego Bay during this same period show tissue burdens twice as high for areas of similar water concentrations (Salazar and Salazar, 1990). This is probably due to the size of mussels measured and their relative growth rates. The Salazar study used smaller, juvenile mussels that grew faster, taking up more TBT in the process, while the natural populations sampled here were mature and slower growing. Possibly of greater importance, however, is the difference in the histories between the natural and transplanted mussels. Individuals continually exposed to higher levels of TBT may become "conditioned" and develop an ability to purge the toxicant from their tissues. Transplanted individuals from relatively clean sites are not conditioned to the levels of TBT to which they are subjected and, therefore, may accumulate higher levels in their tissues.

The TBT concentrations measured in bay mussel tissues were below 2000 ng g^{-1} in natural mussel specimens collected in this study, with the exception of one sample collected from the Coronado Cays yacht marina. Recent data reported by Salazar and Salazar (1990) indicate that tissue TBT concentrations above 2000 ng g^{-1} inhibit growth of bay mussels transplanted to natural field locations in San Diego Bay. It would appear, therefore, that tissue TBT concentrations measured in natural bay mussel populations from San Diego Bay are not indicative of TBT levels which may inhibit growth.

PEARL HARBOR

Butyltin concentrations in water have been measured from a composite total of fifty Pearl Harbor locations during the period April 1986 to July 1989 . Increased analytical sensitivities have provided the capability to measure levels down to 0.3 nanogram per liter and data are now available from regions of the harbor previously reported as below detection limits. While butyltin levels have appeared to increase from baseline levels measured in 1984 (Grovhoug et al., 1987), part of this apparent increase is due to enhanced analytical sensitivity permitting detection of TBT at concentrations less than 5 ng L^{-1}.

During the October 1987 monitoring survey, four TBT-coated test ships were present in Southeast Loch. The total TBT loading factor of 38.1 g day^{-1} was the lowest rate determined for any period of ship presence (Grovhoug et al., 1989). The surface-water TBT concentration in Southeast Loch was also low during October 1987 in agreement with the calculated low-loading factor. Surface-water TBT concentrations were not significantly different from levels found in the Channel region, Drydocks #2 and #4, and the East Loch sample regions. Analysis of the relationship between the mean surface-water TBT concentration in Southeast Loch and the estimated total TBT load factor (figure 10) disclosed a Pearson correlation coefficient of 0.85 (probability > F of 0.02). The movements of individual test ships into various areas of Pearl Harbor have resulted in temporary, highly localized increases in water TBT concentrations at specific stations that soon returned to previous levels after the vessel departed. The brief temporal increases in TBT concentrations and subsequent decreases are consistent with data indicating that TBT is not highly persistent in the water column at environmental concentrations (Seligman et al., 1989).

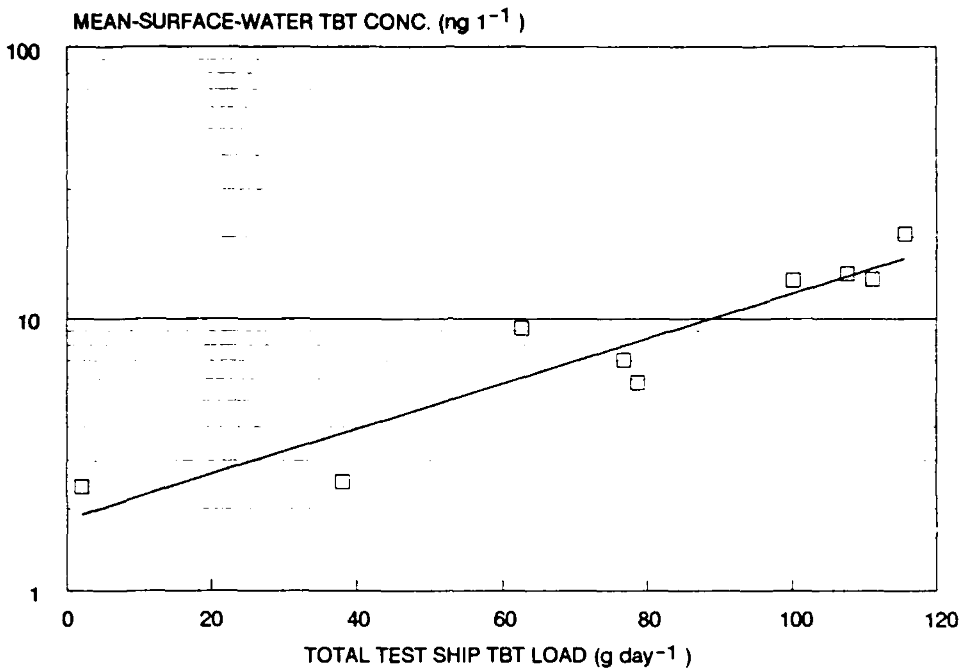


Figure 10. Pearl Harbor surface-water TBT concentrations in Southeast Loch versus calculated test ship TBT loading.

The consistent low level of tributyltin at depth suggests the possibility that long-term elevated inputs of TBT into the basin may have created a reservoir of TBT in the sediments that slowly rediffuses into the deeper waters of the harbor. However, Langston et al. (1987) have reported that up to 99 percent of the TBT present in the water column may be removed into the sediments, with little subsequent desorption back into the water column. Kram et al. (1989) have reported high organic carbon concentrations in Pearl Harbor sediments relative to those found in Honolulu Harbor, San Diego Bay, or Norfolk VA. When the authors tested adsorption and desorption of TBT in Pearl Harbor sediment, poor associations with sediment grain size, clay mineralogy, and percent organic carbon were found. Based on these parameters, no useful estimates of TBT adsorption or desorption rates were possible.

The elevated sediment loadings seen at drydock facilities appear to be associated with the discharge of particulate material bearing butyltin compounds and paint chips, rather than with butyltins dissolved in the effluent. This particulate material likely settles in the sediment surface layer after remaining temporarily suspended in the water column. The extent of migration of the suspended particulate material can be inferred from the sediment samples collected during the January 1988 survey series. Drydock #4 in the Pearl Harbor Naval Shipyard opens directly into the northern end of the Entrance Channel, and sediment samples taken adjacent to the caisson exhibited an average TBT concentration of 350 ng g^{-1}. At 350 meters to the northwest, in the upper end of the Entrance Channel, sediment samples averaged 34 ng g^{-1} TBT. At approximately 1700 meters to the south, at about the center of the Entrance Channel reach, a sediment TBT concentration of 20 ng g^{-1} was seen. Sediment migration appears to be minimal in most areas of Pearl Harbor. Sediment samples collected from other regions did not show a similar gradient in TBT concentrations. Sediment samples collected off the caisson to Drydock #2 contained the highest TBT concentrations in the harbor. However, January 1988 values were less than half of those seen in April 1987 samples (1900 and 4500 ng g^{-1}

respectively), suggesting that considerable mobilization of sediment or degradation has occurred at this site.

NORFOLK

Norfolk Harbor has not been as frequently monitored as San Diego Bay or Pearl Harbor. Therefore it is more difficult to determine if apparent trends toward decreasing TBT water concentrations are accurate in the Hampton Roads, Hampton River, and naval station regions. Seasonal changes in weather and boating activity also complicate long-term evaluations. The data do, however, indicate that significant decreases in TBT concentrations have recently occurred in the above three regions, possibly due to legislative restrictions on TBT paint use enacted in 1987. Additional quarterly monitoring will greatly assist in confirming trends toward decreasing TBT concentrations in the Hampton Roads, Hampton River, and Naval station regions.

The Elizabeth River region exhibited significantly higher TBT values during the intermediate monitoring periods shown in figure 8. This is consistent with previous monitoring in this region (Seligman et al., 1989), which has shown highly variable TBT values apparently associated with intermittent shipyard activity. Legislative restrictions on TBT paint use would not be expected to greatly affect activity in the Elizabeth River region since application of TBT antifouling paint to vessels in excess of 25 m is permitted. The James River region has continued to be characterized by very low TBT concentrations that were not significantly different over the course of this study. The data indicate that measurable TBT in the James River is likely present from dilution of source water from the main Norfolk Harbor water body.

CONCLUSIONS

SAN DIEGO BAY

Surface-water TBT concentrations have significantly decreased in all four regions of San Diego Bay after restrictive legislation prohibiting use of TBT antifouling paints was enacted in January 1988.

Sediment TBT concentrations were not consistent with trends in water TBT concentrations. Sediment TBT values were generally highest in yacht harbors but did not exhibit significant decreases over time. Variable sediment composition between areas in San Diego Bay appears to be highly influential in determining long-term changes in TBT concentrations and complicates regional comparative and predictive efforts.

Tissue TBT concentrations measured in bay mussels (*M. edulis*) have been decreasing in recent surveys following trends observed in surface-water data. These data suggest that natural mussel populations are reasonable indicators of large scale changes in ambient-water TBT concentrations.

PEARL HARBOR

Regional water-column TBT concentrations generally correlate with calculated TBT loading from ship-hull releases documenting that the test-ship hulls were the principal source of the compound in Pearl Harbor, except within Rainbow Marina. Rapid changes in harbor concentration based on presence or absence of test ships suggest that a combination of flushing and degradation can effectively decrease TBT concentrations in the harbor.

Sediment TBT concentrations were most closely correlated with maintenance activities involving TBT-coated vessels. However, samples collected adjacent to drydocks in Pearl Harbor during three TBT test-ship undocking periods showed only slight temporary increases in TBT concentrations.

Tissue TBT burdens correlated with the proximity of TBT sources (test ship hulls, drydocks and marinas). However, because of their integrative response over time, they did not show the same trends relative to ship-hull loading factors seen in the water data.

NORFOLK

Recent decreases in surface-water TBT concentrations in the Hampton Roads, Hampton River, and Naval Station regions appear to be associated with legislative activity restricting the use of TBT antifouling paints on pleasure craft less than 25 m long. Continued quarterly monitoring will likely further confirm the trend toward decreasing TBT values.

The available sediment and tissue data indicate that TBT concentrations have decreased in some areas. Tissue TBT burdens have decreased in the Hampton River reflecting decreases in water TBT concentrations. Additional sediment and tissue data are necessary to permit statistical evaluation of concentration trends over time.

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APPENDIX A

A SUMMARY OF WATER, TISSUE, AND SEDIMENT SAMPLES

The data presented in this appendix are a summary of individual water, tissue, and sediment samples. These values were used to generate mean values reported in the figures and tables discussed in the text. Each harbor has a water, tissue, and sediment sample summary described on a individual sample basis using several variables. The following discussion will identify these variables with a brief description of their function.

The first variable listed after the observation number is the sample which describes the harbor (for example SDM where M indicates the sample is a monitoring sample from San Diego), followed by a station number, followed by either an SW or DW designation which indicates the sample is either a surface- or bottom-water sample. For example, the first sample listed in the water summary from San Diego Bay is SDM-07-SW-1, which indicates that the sample, collected in San Diego Bay, was from the first monitoring period. Subsequent monitoring periods are identified by 02, 03, 04 and so on. The next numeric characters identify the station where the sample was collected, in this case station 07. The SW-1 characters indicate the sample was a surface-water sample and that it was replicate 1.

The second variable is the region of a particular harbor where the sample was collected. In the above example, the region is Yacht indicating that the sample came from a yacht harbor. The previous station designation 07 indicates that the sample was collected at station 7 at the entrance to the Shelter Island yacht harbor. The next variable simply identifies the station where the sample was collected. The layer variable identifies the sample depth, either surface indicated by S or bottom indicated by D. The date variable identifies the date the sample was collected and the time variable identifies the time the sample was collected. The depth variable identifies the depth where samples were collected. Surface samples are collected several cm below the surface and are given a common 0.5 m depth. The depth where bottom-water samples were collected is variable and may be less than 1 to several meters. The tide variable identifies the tide on which samples were collected.

The last three variables identify the monobutyltin, dibutyltin, and tributyltin concentration in nanograms per liter as the chlorides. Blank spaces indicate the sample was not analyzed or not collected. Where tissue and sediment samples are reported, a T or S is present in the sample variable rather than a SW or DW. Tissue samples are also identified by a species variable describing which species was collected. Units for tissue butyltin concentrations are in ug g^{-1} wet weight. Units for sediment butyltin concentrations are in ug g^{-1} dry weight. In the text units for tissue and sediment concentrations were reported as nanograms per gram.

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
1	SDM -07 -SW-1	Yacht	07	S	27Feb86	1614	0.5	LOSLK	36.0	110.0	160.0
2	SDM -07 -SW-2	Yacht	07	S	27Feb86	1615	0.5	LOSLK	36.0	110.0	150.0
3	SDM -07 -SW-3	Yacht	07	S	27Feb86	1616	0.5	LOSLK	41.0	120.0	120.0
4	SDM -07 -DW-1	Yacht	07	D	27Feb86	1609	4	LOSLK	0.0	13.0	20.0
5	SDM -07 -DW-2	Yacht	07	D	27Feb86	1610	4	LOSLK	0.0	11.0	13.0
6	SDM -07 -DW-3	Yacht	07	D	27Feb86	1611	4	LOSLK	0.0	11.0	10.0
7	SDM -08 -SW-1	Yacht	08	S	24Feb86	1645	0.5	LOSLK	0.0	140.0	210.0
8	SDM -08 -SW-2	Yacht	08	S	24Feb86	1646	0.5	LOSLK	0.0	160.0	290.0
9	SDM -08 -SW-3	Yacht	08	S	24Feb86	1647	0.5	LOSLK	0.0	140.0	200.0
10	SDM -10 -SW-1	Yacht	10	S	27Feb86	1629	0.5	LOSLK	0.0	91.0	140.0
11	SDM -10 -SW-2	Yacht	10	S	27Feb86	1630	0.5	LOSLK	0.0	59.0	120.0
12	SDM -10 -SW-3	Yacht	10	S	27Feb86	1631	0.5	LOSLK	0.0	67.0	69.0
13	SDM -10 -DW-1	Yacht	10	D	27Feb86	1631	2	LOSLK	20.0	52.0	62.0
14	SDM -10 -DW-2	Yacht	10	D	27Feb86	1632	2	LOSLK	17.0	64.0	100.0
15	SDM -10 -DW-3	Yacht	10	D	27Feb86	1633	2	LOSLK	15.0	61.0	81.0
16	SDM -10C-SW-1	Yacht	10C	S	24Feb86	1515	0.5	LOSLK	0.0	90.0	110.0
17	SDM -10C-SW-2	Yacht	10C	S	26Feb86	1516	0.5	LOSLK	0.0	98.0	67.0
18	SDM -10C-SW-3	Yacht	10C	S	24Feb86	1517	0.5	LOSLK	0.0	89.0	87.0
19	SDM -11 -SW-1	Yacht	11	S	24Feb86	1620	0.5	LOSLK	0.0	110.0	290.0
20	SDM -11 -SW-2	Yacht	11	S	24Feb86	1624	0.5	LOSLK	0.0	110.0	190.0
21	SDM -11 -SW-3	Yacht	11	S	24Feb86	1622	0.5	LOSLK	0.0	140.0	220.0
22	SDM -16 -SW-1	Yacht	16	S	24Feb86	1412	0.5	LOSLK	0.0	120.0	230.0
23	SDM -16 -SW-2	Yacht	16	S	24Feb86	1413	0.5	LOSLK	0.0	86.0	250.0
24	SDM -16 -SW-3	Yacht	16	S	24Feb86	1414	0.5	LOSLK	0.0	43.0	110.0
25	SDM -19 -SW-1	Yacht	19	S	26Feb86	1654	0.5	LOSLK	18.0	14.0	13.0
26	SDM -19 -SW-2	Yacht	19	S	26Feb86	1655	0.5	LOSLK	11.0	12.0	13.0
27	SDM -19 -SW-3	Yacht	19	S	26Feb86	1656	0.5	LOSLK	18.0	11.0	11.0
28	SDM -19 -DW-1	Yacht	19	D	26Feb86	1651	8	LOSLK	19.0	21.0	24.0
29	SDM -19 -DW-2	Yacht	19	D	26Feb86	1652	8	LOSLK	23.0	25.0	20.0
30	SDM -19 -DW-3	Yacht	19	D	26Feb86	1653	8	LOSLK	.	.	.
31	SDM -26B-SW-1	Yacht	26B	S	24Feb86	1320	0.5	LOSLK	0.0	51.0	40.0
32	SDM -26B-SW-2	Yacht	26B	S	24Feb86	1321	0.5	LOSLK	0.0	7.0	2.0
33	SDM -26B-SW-3	Yacht	26B	S	24Feb86	1322	0.5	LOSLK	0.0	35.0	40.0
34	SDM -49B-SW-1	Yacht	49B	S	24Feb86	1430	0.5	LOSLK	.	57.0	70.0
35	SDM -49B-SW-2	Yacht	49B	S	24Feb86	1431	0.5	LOSLK	0.0	51.0	37.0
36	SDM -49B-SW-3	Yacht	49B	S	24Feb86	1432	0.5	LOSLK	0.0	39.0	40.0
37	SDM02-02B-DW-1	North	02B	D	16Oct86	1507	12	LOSLK	4.0	15.0	9.0
38	SDM02-02B-DW-2	North	02B	D	16Oct86	1508	12	LOSLK	2.0	11.0	9.0
39	SDM02-02B-DW-3	North	02B	D	16Oct86	1509	12	LOSLK	0.0	7.0	10.0
40	SDM02-02B-SW-1	North	02B	S	16Oct86	1504	0.5	LOSLK	0.0	3.0	3.0
41	SDM02-02B-SW-2	North	02B	S	16Oct86	1505	0.5	LOSLK	2.0	4.0	5.0
42	SDM02-02B-SW-3	North	02B	S	16Oct86	1506	0.5	LOSLK	0.0	4.0	5.0
43	SDM02-06A-DW-1	North	06A	D	16Oct86	1506	8	LOSLK	3.0	14.0	6.0
44	SDM02-06A-DW-2	North	06A	D	16Oct86	1507	8	LOSLK	.	.	.
45	SDM02-06A-DW-3	North	06A	D	16Oct86	1508	8	LOSLK	3.0	15.0	9.0
46	SDM02-06A-SW-1	North	06A	S	16Oct86	1509	0.5	LOSLK	3.0	13.0	11.0
47	SDM02-06A-SW-2	North	06A	S	16Oct86	1510	0.5	LOSLK	.	.	.
48	SDM02-06A-SW-3	North	06A	S	16Oct86	1511	0.5	LOSLK	2.0	13.0	7.0
49	SDM02-13 -DW-1	North	13	D	16Oct86	1522	14	LOSLK	0.0	9.2	7.9
50	SDM02-13 -DW-2	North	13	D	16Oct86	1525	14	LOSLK	0.0	9.2	4.7
51	SDM02-13 -DW-3	North	13	D	16Oct86	1528	14	LOSLK	1.8	4.0	8.4
52	SDM02-13 -SW-1	North	13	S	16Oct86	1523	0.5	LOSLK	0.0	8.8	5.8
53	SDM02-13 -SW-2	North	13	S	16Oct86	1524	0.5	LOSLK	.	.	.
54	SDM02-13 -SW-3	North	13	S	16Oct86	1526	0.5	LOSLK	.	.	.
55	SDM02-18 -DW-1	North	18	D	15Oct86	1408	13	LOSLK	7.0	23.0	7.0
56	SDM02-18 -DW-2	North	18	D	15Oct86	1409	13	LOSLK	8.0	21.0	7.0
57	SDM02-18 -DW-3	North	18	D	15Oct86	1410	13	LOSLK	5.0	17.0	4.0
58	SDM02-18 -SW-1	North	18	S	15Oct86	1405	0.5	LOSLK	3.0	11.0	1.0
59	SDM02-18 -SW-2	North	18	S	15Oct86	1406	0.5	LOSLK	1.0	10.0	2.0
60	SDM02-18 -SW-3	North	18	S	15Oct86	1407	0.5	LOSLK	4.0	12.0	2.0
61	SDM02-33 -DW-1	North	33	D	15Oct86	1502	11	LOSLK	9.4	19.0	4.5
62	SDM02-33 -DW-2	North	33	D	15Oct86	1503	11	LOSLK	6.3	11.0	2.8
63	SDM02-33 -DW-3	North	33	D	15Oct86	1504	11	LOSLK	9.0	16.0	2.8
64	SDM02-33 -SW-1	North	33	S	15Oct86	1459	0.5	LOSLK	6.8	17.0	4.5
65	SDM02-33 -SW-2	North	33	S	15Oct86	1500	0.5	LOSLK	5.9	15.0	7.2
66	SDM02-33 -SW-3	North	33	S	15Oct86	1501	0.5	LOSLK	5.0	15.0	2.8
67	SDM02-42 -DW-1	South	42	D	15Oct86	1419	8.5	LOSLK	5.0	17.0	4.0
68	SDM02-42 -DW-2	South	42	D	15Oct86	1420	8.5	LOSLK	5.0	14.0	3.0
69	SDM02-42 -DW-3	South	42	D	15Oct86	1421	8.5	LOSLK	3.0	10.0	3.0
70	SDM02-42 -SW-1	South	42	S	15Oct86	1422	0.5	LOSLK	5.0	15.0	2.0
71	SDM02-42 -SW-2	South	42	S	15Oct86	1423	0.5	LOSLK	7.0	13.0	3.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
72	SDM02-42 -SW-3	South	42	S	15Oct86	1423	0.5	LOSLK	6.0	12.0	3.0
73	SDM02-44A-DW-1	South	44A	D	15Oct86	1531	3	LOSLK	11.0	23.0	7.0
74	SDM02-44A-DW-2	South	44A	D	15Oct86	1532	3	LOSLK	10.0	20.0	11.0
75	SDM02-44A-DW-3	South	44A	D	15Oct86	1533	3	LOSLK	9.0	17.0	6.0
76	SDM02-44A-SW-1	South	44A	S	15Oct86	1534	0.5	LOSLK	11.0	24.0	7.0
77	SDM02-44A-SW-2	South	44A	S	15Oct86	1535	0.5	LOSLK	11.0	22.0	7.0
78	SDM02-44A-SW-3	South	44A	S	15Oct86	1536	0.5	LOSLK	13.0	27.0	8.0
79	SDM02-46 -DW-1	South	46	D	15Oct86	1429	5	LOSLK	8.0	23.0	6.0
80	SDM02-46 -DW-2	South	46	D	15Oct86	1430	5	LOSLK	3.0	27.0	8.0
81	SDM02-46 -DW-3	South	46	D	15Oct86	1431	5	LOSLK	4.0	20.0	7.0
82	SDM02-46 -SW-1	South	46	S	15Oct86	1432	0.5	LOSLK	9.0	29.0	13.0
83	SDM02-46 -SW-2	South	46	S	15Oct86	1433	0.5	LOSLK	6.0	26.0	8.0
84	SDM02-46 -SW-3	South	46	S	15Oct86	1434	0.5	LOSLK	7.0	23.0	7.0
85	SDM02-48 -DW-1	South	48	D	15Oct86	1501	1	LOSLK	10.0	30.0	2.0
86	SDM02-48 -DW-2	South	48	D	15Oct86	1502	1	LOSLK	6.0	20.0	1.0
87	SDM02-48 -DW-3	South	48	D	15Oct86	1503	1	LOSLK	4.0	17.0	2.0
88	SDM02-48 -SW-1	South	48	S	15Oct86	1504	0.5	LOSLK	5.0	17.0	2.0
89	SDM02-48 -SW-2	South	48	S	15Oct86	1505	0.5	LOSLK	4.0	19.0	2.0
90	SDM02-48 -SW-3	South	48	S	15Oct86	1506	0.5	LOSLK	5.0	23.0	5.0
91	SDM02-15A-DW-1	Navy	15A	D	16Oct86	1536	8	LOSLK	0.0	3.0	3.0
92	SDM02-15A-DW-2	Navy	15A	D	16Oct86	1537	8	LOSLK	.	.	.
93	SDM02-15A-DW-3	Navy	15A	D	16Oct86	1538	8	LOSLK	3.0	9.0	10.0
94	SDM02-15A-SW-1	Navy	15A	S	16Oct86	1539	0.5	LOSLK	2.0	9.0	7.0
95	SDM02-15A-SW-2	Navy	15A	S	16Oct86	1540	0.5	LOSLK	.	.	.
96	SDM02-15A-SW-3	Navy	15A	S	16Oct86	1541	0.5	LOSLK	6.0	16.0	6.0
97	SDM02-22 -DW-1	Navy	22	D	15Oct86	1423	9.5	LOSLK	2.0	12.0	3.0
98	SDM02-22 -DW-2	Navy	22	D	15Oct86	1424	9.5	LOSLK	5.0	11.0	3.0
99	SDM02-22 -DW-3	Navy	22	D	15Oct86	1425	9.5	LOSLK	8.0	10.0	4.0
100	SDM02-22 -SW-1	Navy	22	S	15Oct86	1419	0.5	LOSLK	5.0	20.0	8.0
101	SDM02-22 -SW-2	Navy	22	S	15Oct86	1420	0.5	LOSLK	8.0	20.0	8.0
102	SDM02-22 -SW-3	Navy	22	S	15Oct86	1421	0.5	LOSLK	8.0	22.0	10.0
103	SDM02-26A-DW-1	Navy	26A	D	15Oct86	1513	1.5	LOSLK	14.0	28.0	5.0
104	SDM02-26A-DW-2	Navy	26A	D	15Oct86	1514	1.5	LOSLK	14.0	28.0	5.0
105	SDM02-26A-DW-3	Navy	26A	D	15Oct86	1515	1.5	LOSLK	14.0	37.0	5.0
106	SDM02-26A-SW-1	Navy	26A	S	15Oct86	1510	0.5	LOSLK	10.0	37.0	5.0
107	SDM02-26A-SW-2	Navy	26A	S	15Oct86	1511	0.5	LOSLK	6.0	28.0	4.0
108	SDM02-26A-SW-3	Navy	26A	S	15Oct86	1512	0.5	LOSLK	7.0	38.0	4.0
109	SDM02-38A-DW-1	Navy	38A	D	15Oct86	1447	9.5	LOSLK	9.0	27.0	9.0
110	SDM02-38A-DW-2	Navy	38A	D	15Oct86	1448	9.5	LOSLK	8.0	18.0	3.0
111	SDM02-38A-DW-3	Navy	38A	D	15Oct86	1449	9.5	LOSLK	7.0	13.0	3.0
112	SDM02-38A-SW-1	Navy	38A	S	15Oct86	1444	0.5	LOSLK	7.0	18.0	5.0
113	SDM02-38A-SW-2	Navy	38A	S	15Oct86	1445	0.5	LOSLK	6.0	16.0	2.0
114	SDM02-38A-SW-3	Navy	38A	S	15Oct86	1446	0.5	LOSLK	5.0	16.0	3.0
115	SDM02-07 -DW-1	Yacht	07	D	16Oct86	1652	7	LOSLK	11.0	29.0	30.0
116	SDM02-07 -DW-2	Yacht	07	D	16Oct86	1653	7	LOSLK	60.0	31.0	36.0
117	SDM02-07 -DW-3	Yacht	07	D	16Oct86	1654	7	LOSLK	.	49.0	36.0
118	SDM02-07 -SW-1	Yacht	07	S	16Oct86	1649	0.5	LOSLK	32.0	38.0	36.0
119	SDM02-07 -SW-2	Yacht	07	S	16Oct86	1650	0.5	LOSLK	10.0	32.0	25.0
120	SDM02-07 -SW-3	Yacht	07	S	16Oct86	1651	0.5	LOSLK	8.0	28.0	27.0
121	SDM02-08 -DW-1	Yacht	08	D	16Oct86	1442	4.5	LOSLK	6.0	22.0	24.0
122	SDM02-08 -SW-1	Yacht	08	S	16Oct86	1636	0.5	LOSLK	57.0	160.0	200.0
123	SDM02-08C-DW-1	Yacht	08C	D	16Oct86	1653	4.5	LOSLK	5.0	12.0	16.0
124	SDM02-08C-SW-1	Yacht	08C	S	16Oct86	1656	0.5	LOSLK	49.0	100.0	130.0
125	SDM02-08D-DW-1	Yacht	08D	D	16Oct86	1632	4.5	LOSLK	43.0	55.0	65.0
126	SDM02-08D-SW-1	Yacht	08D	S	16Oct86	1630	0.5	LOSLK	77.0	200.0	340.0
127	SDM02-10C-SW-1	Yacht	10C	S	16Oct86	1538	0.5	LOSLK	43.0	140.0	100.0
128	SDM02-10C-DW-1	Yacht	10C	D	16Oct86	1540	3	LOSLK	28.0	100.0	85.0
129	SDM02-10D-SW-1	Yacht	10D	S	16Oct86	1547	0.5	LOSLK	19.0	57.0	35.0
130	SDM02-10D-SW-1D	Yacht	10D	S	16Oct86	1547	0.5	LOSLK	19.0	47.0	27.0
131	SDM02-10D-DW-1	Yacht	10D	D	16Oct86	1550	3	LOSLK	15.0	58.0	52.0
132	SDM02-10E-SW-1	Yacht	10E	S	16Oct86	1530	0.5	LOSLK	75.0	150.0	75.0
133	SDM02-10E-DW-1	Yacht	10E	D	16Oct86	1535	3	LOSLK	32.0	83.0	51.0
134	SDM02-11 -DW-1	Yacht	11	D	16Oct86	1608	5	LOSLK	35.0	54.0	80.0
135	SDM02-11 -SW-1	Yacht	11	S	16Oct86	1606	0.5	LOSLK	59.0	170.0	[illegible]
136	SDM02-11A-DW-1	Yacht	11A	D	16Oct86	1613	5	LOSLK	25.0	83.0	100.0
137	SDM02-11A-SW-1	Yacht	11A	S	16Oct86	1611	0.5	LOSLK	43.0	88.0	100.0
138	SDM02-11A-SW-1D	Yacht	11A	S	16Oct86	1611	0.5	LOSLK	58.0	87.0	110.0
139	SDM02-11B-DW-1	Yacht	11B	D	16Oct86	1603	5	LOSLK	15.0	30.0	43.0
140	SDM02-11B-SW-1	Yacht	11B	S	16Oct86	1600	0.5	LOSLK	81.0	180.0	260.0
141	SDM02-16 -DW-1	Yacht	16	D	16Oct86	1558	4	LOSLK	16.0	70.0	79.0
142	SDM02-16 -SW-1	Yacht	16	S	16Oct86	1559	0.5	LOSLK	32.0	120.0	130.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
143	SDM02-16A-DW-1	Yacht	16A	D	16Oct86	1554	2.5	LOSLK	11.0	62.0	54.0
144	SDM02-16A-SW-1	Yacht	16A	S	16Oct86	1555	0.5	LOSLK	18.0	110.0	150.0
145	SDM02-16B-DW-1	Yacht	16B	D	16Oct86	1549	3	LOSLK	14.0	71.0	76.0
146	SDM02-16B-SW-1	Yacht	16B	S	16Oct86	1550	0.5	LOSLK	28.0	92.0	89.0
147	SDM02-19 -DW-1	Yacht	19	D	15Oct86	1417	10	LOSLK	5.0	17.0	32.0
148	SDM02-19 -DW-2	Yacht	19	D	15Oct86	1418	10	LOSLK	6.0	15.0	39.0
149	SDM02-19 -DW-3	Yacht	19	D	15Oct86	1419	10	LOSLK	4.0	17.0	48.0
150	SDM02-19 -SW-1	Yacht	19	S	15Oct86	1414	0.5	LOSLK	.	.	.
151	SDM02-19 -SW-2	Yacht	19	S	15Oct86	1415	0.5	LOSLK	6.0	19.0	39.0
152	SDM02-19 -SW-3	Yacht	19	S	15Oct86	1416	0.5	LOSLK	6.0	21.0	68.0
153	SDM02-26B-DW-1	Yacht	26B	D	15Oct86	1534	4	LOSLK	39.0	99.0	33.0
154	SDM02-26B-SW-2	Yacht	26B	S	15Oct86	1533	0.5	LOSLK	38.0	100.0	72.0
155	SDM02-26D-DW-1	Yacht	26D	D	15Oct86	1529	4	LOSLK	21.0	69.0	39.0
156	SDM02-26D-SW-1	Yacht	26D	S	15Oct86	1528	0.5	LOSLK	40.0	120.0	63.0
157	SDM02-26E-DW-1	Yacht	26E	D	15Oct86	1539	4.5	LOSLK	17.0	47.0	21.0
158	SDM02-26E-SW-1	Yacht	26E	S	15Oct86	1538	0.5	LOSLK	26.0	74.0	17.0
159	SDM02-53 -DW-1	Yacht	53	D	15Oct86	1523	2	LOSLK	10.0	79.0	13.0
160	SDM02-53 -SW-1	Yacht	53	S	15Oct86	1524	0.5	LOSLK	13.0	20.0	8.0
161	SDM02-53A-DW-1	Yacht	53A	D	15Oct86	1520	2	LOSLK	6.0	26.0	7.0
162	SDM02-53A-SW-1	Yacht	53A	S	15Oct86	1521	0.5	LOSLK	21.0	69.0	47.0
163	SDM02-53B-DW-1	Yacht	53B	D	15Oct86	1514	2.5	LOSLK	17.0	48.0	17.0
164	SDM02-53B-SW-1	Yacht	53B	S	15Oct86	1513	0.5	LOSLK	11.0	61.0	33.0
165	SDM03-02B-SW-1	North	02B	S	20Oct87	1525	0.5	LOSLK	2.1	26.0	10.0
166	SDM03-02B-SW-2	North	02B	S	20Oct87	1526	0.5	LOSLK	4.5	26.0	12.0
167	SDM03-02B-SW-3	North	02B	S	20Oct87	1527	0.5	LOSLK	5.4	24.0	14.0
168	SDM03-02B-DW-1	North	02B	D	20Oct87	1522	12.5	LOSLK	5.2	9.5	5.4
169	SDM03-02B-DW-2	North	02B	D	20Oct87	1523	12.5	LOSLK	3.6	8.0	3.5
170	SDM03-02B-DW-3	North	02B	D	20Oct87	1524	12.5	LOSLK	1.5	7.1	3.0
171	SDM03-06A-SW-1	North	06A	S	20Oct87	1513	0.5	LOSLK	6.7	27.0	17.0
172	SDM03-06A-SW-2	North	06A	S	20Oct87	1514	0.5	LOSLK	7.7	29.0	16.0
173	SDM03-06A-SW-3	North	06A	S	20Oct87	1515	0.5	LOSLK	3.5	30.0	18.0
174	SDM03-06A-DW-1	North	06A	D	20Oct87	1510	9	LOSLK	9.2	30.0	16.0
175	SDM03-06A-DW-2	North	06A	D	20Oct87	1511	9	LOSLK	8.0	32.0	19.0
176	SDM03-06A-DW-3	North	06A	D	20Oct87	1512	9	LOSLK	6.5	30.0	15.0
177	SDM03-13 -SW-1	North	13	S	20Oct87	1457	0.5	LOSLK	1.0	27.0	10.0
178	SDM03-13 -SW-2	North	13	S	20Oct87	1458	0.5	LOSLK	2.7	24.0	14.0
179	SDM03-13 -SW-3	North	13	S	20Oct87	1459	0.5	LOSLK	3.1	41.0	14.0
180	SDM03-13 -DW-1	North	13	D	20Oct87	1454	14	LOSLK	6.3	40.0	14.0
181	SDM03-13 -DW-2	North	13	D	20Oct87	1455	14	LOSLK	6.0	33.0	15.0
182	SDM03-13 -DW-3	North	13	D	20Oct87	1446	14	LOSLK	5.1	38.0	18.0
183	SDM03-18 -SW-1	North	18	S	20Oct87	1419	0.5	LOSLK	4.1	28.0	6.6
184	SDM03-18 -SW-2	North	18	S	20Oct87	1420	0.5	LOSLK	1.7	25.0	10.0
185	SDM03-18 -SW-3	North	18	S	20Oct87	1421	0.5	LOSLK	2.1	24.0	7.0
186	SDM03-18 -DW-1	North	18	D	20Oct87	1416	11	LOSLK	4.8	23.0	5.0
187	SDM03-18 -DW-2	North	18	D	20Oct87	1417	11	LOSLK	5.3	23.0	5.6
188	SDM03-18 -DW-3	North	18	D	20Oct87	1418	11	LOSLK	7.5	27.0	8.8
189	SDM03-33 -SW-1	North	33	S	20Oct87	1512	0.5	LOSLK	6.0	25.0	5.7
190	SDM03-33 -SW-2	North	33	S	20Oct87	1512	0.5	LOSLK	6.4	26.0	6.3
191	SDM03-33 -SW-3	North	33	S	20Oct87	1512	0.5	LOSLK	2.8	12.0	7.2
192	SDM03-33 -DW-1	North	33	D	20Oct87	1510	9	LOSLK	4.5	25.0	15.0
193	SDM03-33 -DW-2	North	33	D	20Oct87	1510	9	LOSLK	6.6	24.0	5.7
194	SDM03-33 -DW-3	North	33	D	20Oct87	1510	9	LOSLK	7.5	21.0	8.0
195	SDM03-35 -SW-1	South	35	S	20Oct87	1500	0.5	LOSLK	3.3	6.7	4.0
196	SDM03-35 -SW-2	South	35	S	20Oct87	1500	0.5	LOSLK	5.0	6.2	1.0
197	SDM03-35 -SW-3	South	35	S	20Oct87	1500	0.5	LOSLK	3.1	3.0	0.9
198	SDM03-35 -DW-1	South	35	D	20Oct87	1459	3	LOSLK	8.3	27.0	2.4
199	SDM03-35 -DW-2	South	35	D	20Oct87	1459	3	LOSLK	7.4	28.0	3.1
200	SDM03-35 -DW-3	South	35	D	20Oct87	1459	3	LOSLK	8.3	23.0	1.4
201	SDM03-42 -SW-1	South	42	S	20Oct87	1448	0.5	LOSLK	3.5	16.0	6.1
202	SDM03-42 -SW-2	South	42	S	20Oct87	1448	0.5	LOSLK	3.2	17.0	6.0
203	SDM03-42 -SW-3	South	42	S	20Oct87	1448	0.5	LOSLK	3.0	18.0	4.4
204	SDM03-42 -DW-1	South	42	D	20Oct87	1446	5	LOSLK	3.7	15.0	2.8
205	SDM03-42 -DW-2	South	42	D	20Oct87	1446	5	LOSLK	1.8	19.0	5.2
206	SDM03-42 -DW-3	South	42	D	20Oct87	1446	5	LOSLK	5.2	20.0	3.8
207	SDM03-44A-SW-1	South	44A	S	20Oct87	1428	0.5	LOSLK	18.0	42.0	16.0
208	SDM03-44A-SW-2	South	44A	S	20Oct87	1428	0.5	LOSLK	15.0	56.0	19.0
209	SDM03-44A-SW-3	South	44A	S	20Oct87	1428	0.5	LOSLK	15.0	71.0	21.0
210	SDM03-44A-DW-1	South	44A	D	20Oct87	1426	2.5	LOSLK	11.0	98.0	16.0
211	SDM03-44A-DW-2	South	44A	D	20Oct87	1426	2.5	LOSLK	12.0	89.0	16.0
212	SDM03-44A-DW-3	South	44A	D	20Oct87	1426	2.5	LOSLK	11.0	120.0	21.0
213	SDM03-46 -SW-1	South	46	S	20Oct87	1438	0.5	LOSLK	14.0	32.0	20.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
214	SDM03-46 -SW-2	South	46	S	20Oct87	1438	0.5	LOSLK	21.0	28.0	16.0
215	SDM03-46 -SW-3	South	46	S	20Oct87	1438	0.5	LOSLK	19.0	35.0	22.0
216	SDM03-46 -DW-1	South	46	D	20Oct87	1436	4	LOSLK	15.0	33.0	21.0
217	SDM03-46 -DW-2	South	46	D	20Oct87	1436	4	LOSLK	16.0	60.0	21.0
218	SDM03-46 -DW-3	South	46	D	20Oct87	1436	4	LOSLK	12.0	49.0	21.0
219	SDM03-48 -SW-1	South	48	S	20Oct87	1356	0.5	LOSLK	6.9	20.0	6.0
220	SDM03-48 -SW-2	South	48	S	20Oct87	1357	0.5	LOSLK	10.0	14.0	2.0
221	SDM03-48 -SW-3	South	48	S	20Oct87	1358	0.5	LOSLK	5.3	18.0	3.5
222	SDM03-48 -DW-1	South	48	D	20Oct87	1354	1	LOSLK	4.4	17.0	6.0
223	SDM03-48 -DW-2	South	48	D	20Oct87	1354	1	LOSLK	3.9	17.0	2.9
224	SDM03-48 -DW-3	South	48	D	20Oct87	1354	1	LOSLK	3.0	14.0	16.0
225	SDM03-15A-SW-1	Navy	15A	S	20Oct87	1448	0.5	LOSLK	3.5	32.0	14.0
226	SDM03-15A-SW-2	Navy	15A	S	20Oct87	1449	0.5	LOSLK	5.2	42.0	14.0
227	SDM03-15A-SW-3	Navy	15A	S	20Oct87	1450	0.5	LOSLK	3.0	36.0	12.0
228	SDM03-15A-DW-1	Navy	15A	D	20Oct87	1445	9	LOSLK	5.2	33.0	12.0
229	SDM03-15A-DW-2	Navy	15A	D	20Oct87	1446	9	LOSLK	3.0	34.0	12.0
230	SDM03-15A-DW-3	Navy	15A	D	20Oct87	1447	9	LOSLK	17.0	50.0	16.0
231	SDM03-20 -SW-1	Navy	20	S	20Oct87	1539	0.5	LOSLK	14.0	23.0	22.0
232	SDM03-20 -SW-2	Navy	20	S	20Oct87	1539	0.5	LOSLK	18.0	30.0	13.0
233	SDM03-20 -SW-3	Navy	20	S	20Oct87	1539	0.5	LOSLK	11.0	27.0	13.0
234	SDM03-20 -DW-1	Navy	20	D	20Oct87	1538	9	LOSLK	7.7	29.0	15.0
235	SDM03-20 -DW-2	Navy	20	D	20Oct87	1538	9	LOSLK	17.0	32.0	24.0
236	SDM03-20 -DW-3	Navy	20	D	20Oct87	1538	9	LOSLK	9.1	38.0	14.0
237	SDM03-22 -SW-1	Navy	22	S	20Oct87	1543	0.5	LOSLK	10.0	20.0	6.6
238	SDM03-22 -SW-2	Navy	22	S	20Oct87	1543	0.5	LOSLK	9.6	21.0	8.0
239	SDM03-22 -SW-3	Navy	22	S	20Oct87	1543	0.5	LOSLK	11.0	26.0	9.6
240	SDM03-22 -DW-1	Navy	22	D	20Oct87	1544	10	LOSLK	7.8	22.0	8.6
241	SDM03-22 -DW-2	Navy	22	D	20Oct87	1544	10	LOSLK	6.4	19.0	9.0
242	SDM03-22 -DW-3	Navy	22	D	20Oct87	1544	10	LOSLK	10.0	22.0	9.0
243	SDM03-26A-SW-1	Navy	26A	S	20Oct87	1355	0.5	LOSLK	8.5	27.0	9.7
244	SDM03-26A-SW-2	Navy	26A	S	20Oct87	1356	0.5	LOSLK	8.7	31.0	9.2
245	SDM03-26A-SW-3	Navy	26A	S	20Oct87	1357	0.5	LOSLK	3.2	10.0	3.2
246	SDM03-26A-DW-1	Navy	26A	D	20Oct87	1352	4.5	LOSLK	5.4	27.0	9.4
247	SDM03-26A-DW-2	Navy	26A	D	20Oct87	1353	4.5	LOSLK	8.4	42.0	16.0
248	SDM03-26A-DW-3	Navy	26A	D	20Oct87	1354	4.5	LOSLK	5.1	35.0	6.6
249	SDM03-27 -SW-1	Navy	27	S	20Oct87	1533	0.5	LOSLK	7.6	33.0	12.0
250	SDM03-27 -SW-2	Navy	27	S	20Oct87	1533	0.5	LOSLK	8.0	22.0	12.0
251	SDM03-27 -SW-3	Navy	27	S	20Oct87	1533	0.5	LOSLK	7.6	27.0	9.0
252	SDM03-27 -DW-1	Navy	27	D	20Oct87	1532	9	LOSLK	3.8	19.0	14.0
253	SDM03-27 -DW-2	Navy	27	D	20Oct87	1532	9	LOSLK	7.0	21.0	14.0
254	SDM03-27 -DW-3	Navy	27	D	20Oct87	1532	9	LOSLK	2.0	23.0	16.0
255	SDM03-38A-SW-1	Navy	38A	S	20Oct87	1523	0.5	LOSLK	13.0	24.0	11.0
256	SDM03-38A-SW-2	Navy	38A	S	20Oct87	1523	0.5	LOSLK	7.1	24.0	7.8
257	SDM03-38A-SW-3	Navy	38A	S	20Oct87	1523	0.5	LOSLK	7.3	22.0	9.7
258	SDM03-38A-DW-1	Navy	38A	D	20Oct87	1521	13	LOSLK	3.4	19.0	4.4
259	SDM03-38A-DW-2	Navy	38A	D	20Oct87	1521	13	LOSLK	5.4	22.0	7.8
260	SDM03-38A-DW-3	Navy	38A	D	20Oct87	1521	13	LOSLK	3.2	23.0	10.0
261	SDM03-07 -SW-1	Yacht	07	S	21Oct87	1620	1	LOSLK	24.0	64.0	95.0
262	SDM03-08 -SW-1	Yacht	08	S	20Oct87	1554	0.5	LOSLK	79.0	240.0	190.0
263	SDM03-08 -DW-1	Yacht	08	D	20Oct87	1553	5.5	LOSLK	17.0	38.0	24.0
264	SDM03-08C-SW-1	Yacht	08C	S	20Oct87	1558	0.5	LOSLK	69.0	220.0	140.0
265	SDM03-08C-DW-1	Yacht	08C	D	20Oct87	1557	5.5	LOSLK	18.0	37.0	15.0
266	SDM03-08D-SW-1	Yacht	08D	S	20Oct87	1550	0.5	LOSLK	39.0	300.0	140.0
267	SDM03-08D-DW-1	Yacht	08D	D	20Oct87	1549	6	LOSLK	7.9	49.0	22.0
268	SDM03-10 -SW-1	Yacht	10	S	21Oct87	1632	1	LOSLK	12.0	32.0	29.0
269	SDM03-10C-SW-1	Yacht	10C	S	20Oct87	1632	0.5	LOSLK	44.0	160.0	130.0
270	SDM03-10C-DW-1	Yacht	10C	D	20Oct87	1631	4	LOSLK	17.0	47.0	28.0
271	SDM03-10D-SW-1	Yacht	10D	S	20Oct87	1638	0.5	LOSLK	41.0	210.0	140.0
272	SDM03-10D-DW-1	Yacht	10D	D	20Oct87	1637	4	LOSLK	18.0	93.0	76.0
273	SDM03-10E-SW-1	Yacht	10E	S	20Oct87	1626	0.5	LOSLK	33.0	150.0	110.0
274	SDM03-10E-DW-1	Yacht	10E	D	20Oct87	1625	4	LOSLK	26.0	65.0	46.0
275	SDM03-11 -SW-1	Yacht	11	S	20Oct87	1624	0.5	LOSLK	40.0	200.0	440.0
276	SDM03-11 -DW-1	Yacht	11	D	20Oct87	1624	6	LOSLK	60.0	62.0	60.0
277	SDM03-11A-SW-1	Yacht	11A	S	20Oct87	1628	0.5	LOSLK	54.0	85.0	14.0
278	SDM03-11A-DW-1	Yacht	11A	D	20Oct87	1627	6	LOSLK	27.0	35.0	42.0
279	SDM03-11B-SW-1	Yacht	11B	S	20Oct87	1622	0.5	LOSLK	35.0	180.0	450.0
280	SDM03-11B-DW-1	Yacht	11B	D	20Oct87	1622	6	LOSLK	30.0	50.0	72.0
281	SDM03-16 -SW-1	Yacht	16	S	20Oct87	1438	0.5	LOSLK	33.0	57.0	22.0
282	SDM03-16 -DW-1	Yacht	16	D	20Oct87	1437	4	LOSLK	12.0	110.0	69.0
283	SDM03-16A-SW-1	Yacht	16A	S	20Oct87	1434	0.5	LOSLK	36.0	240.0	150.0
284	SDM03-16A-DW-1	Yacht	16A	D	20Oct87	1433	4	LOSLK	23.0	180.0	140.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
285	SDM03-16B-SW-1	Yacht	16B	S	20Oct87	1431	0.5	LOSLK	14.0	91.0	84.0
286	SDM03-16B-DW-1	Yacht	16B	D	20Oct87	1431	4	LOSLK	13.0	62.0	79.0
287	SDM03-19 -SW-1	Yacht	19	S	20Oct87	1406	0.5	LOSLK	7.7	36.0	14.0
288	SDM03-19 -SW-2	Yacht	19	S	20Oct87	1407	0.5	LOSLK	8.8	38.0	14.0
289	SDM03-19 -SW-3	Yacht	19	S	20Oct87	1408	0.5	LOSLK	7.4	35.0	14.0
290	SDM03-19 -DW-1	Yacht	19	D	20Oct87	1403	9	LOSLK	5.8	33.0	19.0
291	SDM03-19 -DW-2	Yacht	19	D	20Oct87	1404	9	LOSLK	6.1	33.0	14.0
292	SDM03-19 -DW-3	Yacht	19	D	20Oct87	1405	9	LOSLK	3.7	36.0	15.0
293	SDM03-26B-SW-1	Yacht	26B	S	20Oct87	1337	0.5	LOSLK	27.0	67.0	81.0
294	SDM03-26B-DW-1	Yacht	26B	D	20Oct87	1336	5	LOSLK	17.0	46.0	39.0
295	SDM03-26D-SW-1	Yacht	26D	S	20Oct87	1340	0.5	LOSLK	17.0	63.0	65.0
296	SDM03-26D-DW-1	Yacht	26D	D	20Oct87	1339	6	LOSLK	15.0	26.0	21.0
297	SDM03-26E-SW-1	Yacht	26E	S	20Oct87	1333	0.5	LOSLK	0.0	57.0	44.0
298	SDM03-26E-DW-1	Yacht	26E	D	20Oct87	1332	5	LOSLK	14.0	61.0	48.0
299	SDM03-49B-SW-1	Yacht	49B	S	20Oct87	1345	0.5	LOSLK	28.0	51.0	41.0
300	SDM03-49B-DW-1	Yacht	49B	D	20Oct87	1343	3	LOSLK	19.0	51.0	38.0
301	SDM03-49C-SW-1	Yacht	49C	S	20Oct87	1340	0.5	LOSLK	11.0	43.0	23.0
302	SDM03-49C-DW-1	Yacht	49C	D	20Oct87	1339	2.5	LOSLK	15.0	51.0	43.0
303	SDM03-49D-SW-1	Yacht	49D	S	20Oct87	1336	0.5	LOSLK	32.0	50.0	24.0
304	SDM03-49D-DW-1	Yacht	49D	D	20Oct87	1335	2.5	LOSLK	13.0	66.0	32.0
305	SDM03-53 -SW-1	Yacht	53	S	20Oct87	1407	0.5	LOSLK	18.0	87.0	140.0
306	SDM03-53 -DW-1	Yacht	53	D	20Oct87	1406	3	LOSLK	15.0	38.0	14.0
307	SDM03-53A-SW-1	Yacht	53A	S	20Oct87	1411	0.5	LOSLK	39.0	74.0	76.0
308	SDM03-53A-DW-1	Yacht	53A	D	20Oct87	1410	3	LOSLK	13.0	35.0	16.0
309	SDM03-53B-SW-1	Yacht	53B	S	20Oct87	1444	0.5	LOSLK	36.0	69.0	38.0
310	SDM03-53B-DW-1	Yacht	53B	D	20Oct87	1413	3.5	LOSLK	5.5	34.0	19.0
311	SDM03-53B-SW-1	Yacht	53B	S	21Oct87	1300	1	LOSLK	17.0	110.0	55.0
312	SDM04-02B-SW-1	North	02B	S	25Feb88	1113	0.5	LOSLK	14.0	6.1	7.2
313	SDM04-02B-SW-2	North	02B	S	25Feb88	1114	0.5	LOSLK	16.0	7.6	7.5
314	SDM04-02B-SW-3	North	02B	S	25Feb88	1115	0.5	LOSLK	9.0	7.1	8.1
315	SDM04-02B-DW-1	North	02B	D	25Feb88	1116	4	LOSLK	9.4	9.2	9.7
316	SDM04-02B-DW-2	North	02B	D	25Feb88	1117	4	LOSLK	9.4	8.7	9.0
317	SDM04-02B-DW-3	North	02B	D	25Feb88	1118	4	LOSLK	11.0	8.5	7.6
318	SDM04-06A-SW-1	North	06A	S	25Feb88	1127	0.5	LOSLK	9.4	19.0	26.0
319	SDM04-06A-SW-2	North	06A	S	25Feb88	1128	0.5	LOSLK	13.0	8.7	21.0
320	SDM04-06A-SW-3	North	06A	S	25Feb88	1129	0.5	LOSLK	14.0	20.0	27.0
321	SDM04-06A-DW-1	North	06A	D	25Feb88	1124	9.5	LOSLK	12.0	5.5	17.0
322	SDM04-06A-DW-2	North	06A	D	25Feb88	1125	9.5	LOSLK	8.1	11.0	17.0
323	SDM04-06A-DW-3	North	06A	D	25Feb88	1126	9.5	LOSLK	8.8	8.9	16.0
324	SDM04-13 -SW-1	North	13	S	25Feb88	1140	0.5	LOSLK	19.0	25.0	24.0
325	SDM04-13 -SW-2	North	13	S	25Feb88	1141	0.5	LOSLK	20.0	19.0	18.0
326	SDM04-13 -SW-3	North	13	S	25Feb88	1142	0.5	LOSLK	17.0	14.0	19.0
327	SDM04-13 -DW-1	North	13	D	25Feb88	1137	14	LOSLK	14.0	19.0	25.0
328	SDM04-13 -DW-2	North	13	D	25Feb88	1138	14	LOSLK	13.0	18.0	20.0
329	SDM04-13 -DW-3	North	13	D	25Feb88	1139	14	LOSLK	17.0	25.0	30.0
330	SDM04-18 -SW-1	North	18	S	24Feb88	1012	0.5	LOSLK	6.3	11.0	4.8
331	SDM04-18 -SW-2	North	18	S	24Feb88	1013	0.5	LOSLK	7.7	9.1	8.2
332	SDM04-18 -SW-3	North	18	S	24Feb88	1015	0.5	LOSLK	6.0	7.9	5.5
333	SDM04-18 -DW-1	North	18	D	24Feb88	1008	10	LOSLK	5.9	11.0	11.0
334	SDM04-18 -DW-2	North	18	D	24Feb88	1009	10	LOSLK	6.6	6.7	8.3
335	SDM04-18 -DW-3	North	18	D	24Feb88	1010	10	LOSLK	6.4	15.0	10.0
336	SDM04-33 -SW-1	North	33	S	24Feb88	1049	0.5	LOSLK	5.9	14.0	12.0
337	SDM04-33 -SW-2	North	33	S	24Feb88	1050	0.5	LOSLK	5.2	14.0	9.3
338	SDM04-33 -SW-3	North	33	S	24Feb88	1051	0.5	LOSLK	8.6	7.3	2.1
339	SDM04-33 -DW-1	North	33	D	24Feb88	1046	6	LOSLK	11.0	13.0	8.9
340	SDM04-33 -DW-2	North	33	D	24Feb88	1047	6	LOSLK	8.0	19.0	14.0
341	SDM04-33 -DW-3	North	33	D	24Feb88	1048	6	LOSLK	9.5	9.5	8.5
342	SDM04-26C-SW-1	South	26C	S	24Feb88	0952	0.5	LOSLK	16.0	7.8	12.0
343	SDM04-26C-DW-1	South	26C	D	24Feb88	0951	2	LOSLK	13.0	9.9	13.0
344	SDM04-35 -SW-1	South	35	S	24Feb88	1007	0.5	LOSLK	5.6	8.3	5.6
345	SDM04-35 -SW-2	South	35	S	24Feb88	1008	0.5	LOSLK	5.3	7.9	6.4
346	SDM04-35 -SW-3	South	35	S	24Feb88	1009	0.5	LOSLK	6.2	5.6	5.9
347	SDM04-35 -DW-1	South	35	D	24Feb88	1004	2.5	LOSLK	3.4	5.1	4.3
348	SDM04-35 -DW-2	South	35	D	24Feb88	1005	2.5	LOSLK	4.1	8.5	6.4
349	SDM04-35 -DW-3	South	35	D	24Feb88	1006	2.5	LOSLK	2.1	6.7	6.3
350	SDM04-42 -SW-1	South	42	S	24Feb88	1103	0.5	LOSLK	19.0	19.0	11.0
351	SDM04-42 -SW-2	South	42	S	24Feb88	1104	0.5	LOSLK	13.0	19.0	12.0
352	SDM04-42 -SW-3	South	42	S	24Feb88	1105	0.5	LOSLK	13.0	16.0	11.0
353	SDM04-42 -DW-1	South	42	D	24Feb88	1100	9	LOSLK	22.0	17.0	18.0
354	SDM04-42 -DW-2	South	42	D	24Feb88	1101	9	LOSLK	20.0	11.0	17.0
355	SDM04-42 -DW-3	South	42	D	24Feb88	1102	9	LOSLK	18.0	16.0	22.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
356	SDM04-44A-SW-1	South	44A	S	24Feb88	1015	0.5	LOSLK	18.0	24.0	17.0
357	SDM04-44A-SW-2	South	44A	S	24Feb88	1016	0.5	LOSLK	13.0	16.0	13.0
358	SDM04-44A-SW-3	.South	44A	S	24Feb88	1017	0.5	LOSLK	12.0	30.0	32.0
359	SDM04-44A-DW-1	South	44A	D	24Feb88	1018	2.5	LOSLK	7.8	24.0	19.0
360	SDM04-44A-DW-2	South	44A	D	24Feb88	1019	2.5	LOSLK	8.8	19.0	20.0
361	SDM04-44A-DW-3	South	44A	D	24Feb88	1020	2.5	LOSLK	7.9	23.0	20.0
362	SDM04-46 -SW-1	South	46	S	24Feb88	1108	0.5	LOSLK	8.9	6.9	4.8
363	SDM04-46 -SW-2	South	46	S	24Feb88	1109	0.5	LOSLK	8.2	6.5	8.4
364	SDM04-46 -SW-3	South	46	S	24Feb88	1110	0.5	LOSLK	8.9	6.8	4.5
365	SDM04-46 -DW-1	South	46	D	24Feb88	1111	5	LOSLK	10.0	16.0	9.8
366	SDM04-46 -DW-2	South	46	D	24Feb88	1112	5	LOSLK	8.4	12.0	12.0
367	SDM04-46 -DW-3	South	46	D	24Feb88	1113	5	LOSLK	6.1	14.0	13.0
368	SDM04-48 -SW-1	South	48	S	24Feb88	1044	0.5	LOSLK	6.9	8.9	6.3
369	SDM04-48 -SW-2	South	48	S	24Feb88	1045	0.5	LOSLK	8.5	6.4	5.0
370	SDM04-48 -SW-3	South	48	S	24Feb88	1046	0.5	LOSLK	5.5	5.7	2.8
371	SDM04-48 -DW-1	South	48	D	24Feb88	1047	1.5	LOSLK	13.0	7.5	5.2
372	SDM04-48 -DW-2	South	48	D	24Feb88	1048	1.5	LOSLK	6.2	5.8	2.3
373	SDM04-48 -DW-3	South	48	D	24Feb88	1049	1.5	LOSLK	3.4	1.2	1.1
374	SDM04-15A-SW-1	Navy	15A	S	25Feb88	1148	0.5	LOSLK	14.0	12.0	12.0
375	SDM04-15A-SW-2	Navy	15A	S	25Feb88	1149	0.5	LOSLK	15.0	13.0	16.0
376	SDM04-15A-SW-3	Navy	15A	S	25Feb88	1150	0.5	LOSLK	12.0	16.0	20.0
377	SDM04-15A-DW-1	Navy	15A	D	25Feb88	1145	10	LOSLK	10.0	16.0	19.0
378	SDM04-15A-DW-2	Navy	15A	D	25Feb88	1146	10	LOSLK	12.0	12.0	9.4
379	SDM04-15A-DW-3	Navy	15A	D	25Feb88	1147	10	LOSLK	7.0	7.6	13.0
380	SDM04-20 -SW-1	Navy	20	S	24Feb88	1035	0.5	LOSLK	9.7	18.0	21.0
381	SDM04-20 -SW-2	Navy	20	S	24Feb88	1036	0.5	LOSLK	8.0	14.0	17.0
382	SDM04-20 -SW-3	Navy	20	S	24Feb88	1037	0.5	LOSLK	15.0	16.0	19.0
383	SDM04-20 -DW-1	Navy	20	D	24Feb88	1032	11	LOSLK	7.1	16.0	17.0
384	SDM04-20 -DW-2	Navy	20	D	24Feb88	1033	11	LOSLK	7.6	15.0	16.0
385	SDM04-20 -DW-3	Navy	20	D	24Feb88	1034	11	LOSLK	11.0	17.0	20.0
386	SDM04-22 -SW-1	Navy	22	S	24Feb88	1030	0.5	LOSLK	6.6	20.0	16.0
387	SDM04-22 -SW-2	Navy	22	S	24Feb88	1031	0.5	LOSLK	15.0	16.0	9.8
388	SDM04-22 -SW-3	Navy	22	S	24Feb88	1032	0.5	LOSLK	9.7	14.0	9.3
389	SDM04-22 -DW-1	Navy	22	D	24Feb88	1027	11	LOSLK	11.0	9.1	15.0
390	SDM04-22 -DW-2	Navy	22	D	24Feb88	1028	11	LOSLK	9.8	13.0	12.0
391	SDM04-22 -DW-3	Navy	22	D	24Feb88	1029	11	LOSLK	5.6	20.0	15.0
392	SDM04-26A-SW-1	Navy	26A	S	24Feb88	0947	0.5	LOSLK	18.0	18.0	7.5
393	SDM04-26A-SW-2	Navy	26A	S	24Feb88	0948	0.5	LOSLK	13.0	14.0	10.0
394	SDM04-26A-SW-3	Navy	26A	S	24Feb88	0949	0.5	LOSLK	16.0	9.2	6.3
395	SDM04-26A-DW-1	Navy	26A	D	24Feb88	0944	2	LOSLK	15.0	18.0	14.0
396	SDM04-26A-DW-2	Navy	26A	D	24Feb88	0945	2	LOSLK	14.0	12.0	14.0
397	SDM04-26A-DW-3	Navy	26A	D	24Feb88	0946	2	LOSLK	16.0	15.0	18.0
398	SDM04-27 -SW-1	Navy	27	S	24Feb88	1044	0.5	LOSLK	11.0	10.0	12.0
399	SDM04-27 -SW-2	Navy	27	S	24Feb88	1045	0.5	LOSLK	16.0	14.0	16.0
400	SDM04-27 -SW-3	Navy	27	S	24Feb88	1046	0.5	LOSLK	10.0	14.0	16.0
401	SDM04-27 -DW-1	Navy	27	D	24Feb88	1041	10	LOSLK	8.1	18.0	19.0
402	SDM04-27 -DW-2	Navy	27	D	24Feb88	1042	10	LOSLK	8.8	15.0	20.0
403	SDM04-27 -DW-3	Navy	27	D	24Feb88	1043	10	LOSLK	8.6	12.0	17.0
404	SDM04-38A-SW-1	Navy	38A	S	24Feb88	1055	0.5	LOSLK	11.0	11.0	12.0
405	SDM04-38A-SW-2	Navy	38A	S	24Feb88	1056	0.5	LOSLK	15.0	13.0	19.0
406	SDM04-38A-SW-3	Navy	38A	S	24Feb88	1057	0.5	LOSLK	16.0	12.0	12.0
407	SDM04-38A-DW-1	Navy	38A	D	24Feb88	1052	12	LOSLK	7.5	15.0	16.0
408	SDM04-38A-DW-2	Navy	38A	D	24Feb88	1053	12	LOSLK	8.0	13.0	9.2
409	SDM04-38A-DW-3	Navy	38A	D	24Feb88	1054	12	LOSLK	7.9	13.0	11.0
410	SDM04-07 -SW-1	Yacht	07	S	25Feb88	1226	0.5	LOSLK	160.0	46.0	250.0
411	SDM04-07 -SW-2	Yacht	07	S	25Feb88	1227	0.5	LOSLK	110.0	66.0	280.0
412	SDM04-07 -SW-3	Yacht	07	S	25Feb88	1228	0.5	LOSLK	170.0	77.0	210.0
413	SDM04-07 -DW-1	Yacht	07	D	25Feb88	1229	4	LOSLK	130.0	26.0	150.0
414	SDM04-07 -DW-2	Yacht	07	D	25Feb88	1230	4	LOSLK	120.0	35.0	82.0
415	SDM04-07 -DW-3	Yacht	07	D	25Feb88	1230	4	LOSLK	140.0	21.0	120.0
416	SDM04-08 -SW-1	Yacht	08	S	25Feb88	1216	0.5	LOSLK	77.0	86.0	190.0
417	SDM04-08 -DW-1	Yacht	08	D	25Feb88	1217	4	LOSLK	61.0	14.0	73.0
418	SDM04-08C-SW-1	Yacht	08C	S	25Feb88	1221	0.5	LOSLK	70.0	59.0	210.0
419	SDM04-08C-DW-1	Yacht	08C	D	25Feb88	1222	5	LOSLK	74.0	24.0	67.0
420	SDM04-08D-SW-1	Yacht	08D	S	25Feb88	1211	0.5	LOSLK	70.0	130.0	230.0
421	SDM04-08D-DW-1	Yacht	08D	D	25Feb88	1212	4	LOSLK	73.0	22.0	32.0
422	SDM04-10C-SW-1	Yacht	10C	S	25Feb88	1123	0.5	LOSLK	41.0	65.0	72.0
423	SDM04-10C-DW-1	Yacht	10C	D	25Feb88	1122	3.5	LOSLK	32.0	23.0	42.0
424	SDM04-10D-SW-1	Yacht	10D	S	25Feb88	1129	0.5	LOSLK	72.0	79.0	85.0
425	SDM04-10D-DW-1	Yacht	10D	D	25Feb88	1128	2.5	LOSLK	40.0	74.0	86.0
426	SDM04-10E-SW-1	Yacht	10E	S	25Feb88	1117	0.5	LOSLK	75.0	100.0	78.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
427	SDM04-10E-DW-1	Yacht	10E	D	25Feb88	1116	2.5	LOSLK	54.0	52.0	64.0
428	SDM04-11 -SW-1	Yacht	11	S	25Feb88	1143	0.5	LOSLK	37.0	48.0	140.0
429	SDM04-11 -DW-1	Yacht	11	D	25Feb88	1144	5	LOSLK	30.0	17.0	50.0
430	SDM04-11A-SW-1	Yacht	11A	S	25Feb88	1147	0.5	LOSLK	74.0	31.0	52.0
431	SDM04-11A-DW-1	Yacht	11A	D	25Feb88	1148	5	LOSLK	29.0	17.0	36.0
432	SDM04-11B-SW-1	Yacht	11B	S	25Feb88	1138	0.5	LOSLK	43.0	55.0	110.0
433	SDM04-11B-DW-1	Yacht	11B	D	25Feb88	1139	5	LOSLK	32.0	27.0	26.0
434	SDM04-16 -SW-1	Yacht	16	S	25Feb88	1158	0.5	LOSLK	63.0	33.0	120.0
435	SDM04-16 -DW-1	Yacht	16	D	25Feb88	1157	3	LOSLK	33.0	35.0	150.0
436	SDM04-16A-SW-1	Yacht	16A	S	25Feb88	1201	0.5	LOSLK	69.0	57.0	270.0
437	SDM04-16A-DW-1	Yacht	16A	D	25Feb88	1200	3	LOSLK	50.0	25.0	86.0
438	SDM04-16B-SW-1	Yacht	16B	S	25Feb88	1204	0.5	LOSLK	72.0	34.0	93.0
439	SDM04-16B-DW-1	Yacht	16B	D	25Feb88	1203	4	LOSLK	41.0	19.0	26.0
440	SDM04-19 -SW-1	Yacht	19	S	24Feb88	1022	0.5	LOSLK	8.4	7.9	7.8
441	SDM04-19 -SW-2	Yacht	19	S	24Feb88	1023	0.5	LOSLK	11.0	19.0	13.0
442	SDM04-19 -SW-3	Yacht	19	S	24Feb88	1024	0.5	LOSLK	19.0	17.0	12.0
443	SDM04-19 -DW-1	Yacht	19	D	24Feb88	1019	10	LOSLK	12.0	12.0	15.0
444	SDM04-19 -DW-2	Yacht	19	D	24Feb88	1020	10	LOSLK	9.1	8.3	12.0
445	SDM04-19 -DW-2	Yacht	19	D	24Feb88	1021	10	LOSLK	10.0	16.0	17.0
446	SDM04-26B-SW-1	Yacht	26B	S	24Feb88	0954	0.5	LOSLK	24.0	17.0	39.0
447	SDM04-26B-DW-1	Yacht	26B	D	24Feb88	0953	5	LOSLK	29.0	36.0	51.0
448	SDM04-26D-SW-1	Yacht	26D	S	24Feb88	0958	0.5	LOSLK	23.0	17.0	28.0
449	SDM04-26D-DW-1	Yacht	26D	D	24Feb88	0957	4	LOSLK	12.0	28.0	26.0
450	SDM04-26E-SW-1	Yacht	26E	S	24Feb88	0951	0.5	LOSLK	45.0	34.0	60.0
451	SDM04-26E-DW-1	Yacht	26E	D	24Feb88	0950	4	LOSLK	55.0	34.0	44.0
452	SDM04-49B-SW-1	Yacht	49B	S	24Feb88	1059	0.5	LOSLK	59.0	25.0	77.0
453	SDM04-49B-DW-1	Yacht	49B	D	24Feb88	1100	1.5	LOSLK	13.0	30.0	34.0
454	SDM04-49C-SW-1	Yacht	49C	S	24Feb88	1056	0.5	LOSLK	60.0	27.0	42.0
455	SDM04-49C-DW-1	Yacht	49C	D	24Feb88	1055	1.5	LOSLK	16.0	23.0	18.0
456	SDM04-49D-SW-1	Yacht	49D	S	24Feb88	1052	0.5	LOSLK	26.0	23.0	39.0
457	SDM04-49D-DW-1	Yacht	49D	D	24Feb88	1051	1.5	LOSLK	13.0	23.0	29.0
458	SDM04-53 -SW-1	Yacht	53	S	24Feb88	1032	0.5	LOSLK	43.0	29.0	39.0
459	SDM04-53 -DW-1	Yacht	53	D	24Feb88	1033	2	LOSLK	32.0	25.0	50.0
460	SDM04-53A-SW-1	Yacht	53A	S	24Feb88	1036	0.5	LOSLK	15.0	23.0	79.0
461	SDM04-53A-DW-1	Yacht	53A	D	24Feb88	1037	2	LOSLK	19.0	29.0	74.0
462	SDM04-53B-SW-1	Yacht	53B	S	24Feb88	1040	0.5	LOSLK	9.7	26.0	53.0
463	SDM04-53B-DW-1	Yacht	53B	D	24Feb88	1041	2	LOSLK	13.0	36.0	57.0
464	SDM05-02B-SW-1	North	02B	S	19Oct88	1144	0.5	LOSLK	4.4	5.8	4.1
465	SDM05-02B-SW-2	North	02B	S	19Oct88	1147	0.5	LOSLK	6.7	3.8	5.3
466	SDM05-02B-SW-3	North	02B	S	19Oct88	1151	0.5	LOSLK	3.2	5.3	3.1
467	SDM05-02B-DW-1	North	02B	D	19Oct88	1145	14.5	LOSLK	5.9	3.5	3.4
468	SDM05-02B-DW-2	North	02B	D	19Oct88	1148	14	LOSLK	1.6	3.0	0.8
469	SDM05-02B-DW-3	North	02B	D	19Oct88	1152	20	LOSLK	2.6	3.5	3.0
470	SDM05-06A-SW-1	North	06A	S	19Oct88	1131	0.5	LOSLK	7.5	13.0	9.7
471	SDM05-06A-SW-2	North	06A	S	19Oct88	1133	0.5	LOSLK	6.9	8.4	3.4
472	SDM05-06A-SW-3	North	06A	S	19Oct88	1135	0.5	LOSLK	6.1	14.0	7.5
473	SDM05-06A-DW-1	North	06A	D	19Oct88	1130	14	LOSLK	3.5	9.2	3.6
474	SDM05-06A-DW-2	North	06A	D	19Oct88	1134	14	LOSLK	1.0	3.7	1.5
475	SDM05-06A-DW-3	North	06A	D	19Oct88	1136	12.5	LOSLK	.	5.6	4.7
476	SDM05-13 -SW-1	North	13	S	19Oct88	1116	0.5	LOSLK	4.0	9.3	6.4
477	SDM05-13 -SW-2	North	13	S	19Oct88	1118	0.5	LOSLK	4.9	18.0	4.7
478	SDM05-13 -SW-3	North	13	S	19Oct88	1121	0.5	LOSLK	9.1	17.0	5.1
479	SDM05-13 -DW-1	North	13	D	19Oct88	1115	14.5	LOSLK	1.9	6.2	5.7
480	SDM05-13 -DW-2	North	13	D	19Oct88	1119	16.5	LOSLK	1.8	4.4	2.6
481	SDM05-13 -DW-3	North	13	D	19Oct88	1122	15.5	LOSLK	3.8	12.0	7.2
482	SDM05-18 -SW-1	North	18	S	19Oct88	1043	0.5	LOSLK	7.5	21.0	10.0
483	SDM05-18 -SW-2	North	18	S	19Oct88	1049	0.5	LOSLK	7.1	18.0	13.0
484	SDM05-18 -SW-3	North	18	S	19Oct88	1053	0.5	LOSLK	6.7	11.0	8.8
485	SDM05-18 -DW-1	North	18	D	19Oct88	1046	13	LOSLK	6.7	16.0	6.6
486	SDM05-18 -DW-2	North	18	D	19Oct88	1050	13.5	LOSLK	10.0	12.0	5.0
487	SDM05-18 -DW-3	North	18	D	19Oct88	1054	13.5	LOSLK	3.8	7.6	7.5
488	SDM05-35 -SW-1	South	35	S	19Oct88	1245	0.5	LOSLK	3.4	14.0	6.4
489	SDM05-35 -SW-2	South	35	S	19Oct88	1242	0.5	LOSLK	4.2	15.0	2.1
490	SDM05-35 -SW-3	South	35	S	19Oct88	1249	0.5	LOSLK	8.1	19.0	4.1
491	SDM05-35 -DW-1	South	35	D	19Oct88	1245	5	LOSLK	11.0	1.8	5.2
492	SDM05-35 -DW-2	South	35	D	19Oct88	1242	5	LOSLK	1.7	6.6	3.5
493	SDM05-35 -DW-3	South	35	D	19Oct88	1249	5	LOSLK	7.5	15.0	6.7
494	SDM05-46 -SW-1	South	46	S	19Oct88	1140	0.5	LOSLK	6.9	12.0	4.3
495	SDM05-46 -SW-2	South	46	S	19Oct88	1136	0.5	LOSLK	5.7	11.0	3.0
496	SDM05-46 -SW-3	South	46	S	19Oct88	1143	0.5	LOSLK	4.2	11.0	3.1
497	SDM05-46 -DW-1	South	46	D	19Oct88	1140	8	LOSLK	6.8	15.0	6.1

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
498	SDM05-46 -DW-2	South	46	D	19Oct88	1135	5	LOSLK	4.9	16.0	4.3
499	SDM05-46 -DW-3	South	46	D	19Oct88	1143	8	LOSLK	6.1	14.0	5.5
500	SDM05-48 -SW-1	South	48	S	19Oct88	1207	0.5	LOSLK	6.2	9.5	2.0
501	SDM05-48 -SW-2	South	48	S	19Oct88	1210	0.5	LOSLK	4.5	8.8	1.7
502	SDM05-48 -SW-3	South	48	S	19Oct88	1215	0.5	LOSLK	7.0	12.0	3.6
503	SDM05-48 -DW-1	South	48	D	19Oct88	1207	2	LOSLK	4.9	9.6	2.8
504	SDM05-48 -DW-2	South	48	D	19Oct88	1210	1	LOSLK	4.6	7.8	1.1
505	SDM05-48 -DW-3	South	48	D	19Oct88	1215	3	LOSLK	5.5	12.0	2.8
506	SDM05-15 -SW-1	Navy	15	S	19Oct88	1103	0.5	LOSLK	6.5	15.0	5.5
507	SDM05-15 -SW-2	Navy	15	S	19Oct88	1107	0.5	LOSLK	6.5	15.0	5.9
508	SDM05-15 -SW-3	Navy	15	S	19Oct88	1110	0.5	LOSLK	5.4	16.0	12.0
509	SDM05-15 -DW-1	Navy	15	D	19Oct88	1104	15	LOSLK	3.6	6.6	3.8
510	SDM05-15 -DW-2	Navy	15	D	19Oct88	1108	14.5	LOSLK	8.7	20.0	9.1
511	SDM05-15 -DW-3	Navy	15	D	19Oct88	1111	15	LOSLK	8.4	18.0	7.8
512	SDM05-22 -SW-1	Navy	22	S	19Oct88	1048	0.5	LOSLK	10.0	22.0	6.6
513	SDM05-22 -SW-2	Navy	22	S	19Oct88	1052	0.5	LOSLK	6.9	23.0	7.8
514	SDM05-22 -SW-3	Navy	22	S	19Oct88	1056	0.5	LOSLK	4.5	12.0	4.6
515	SDM05-22 -DW-1	Navy	22	D	19Oct88	1045	11	LOSLK	12.0	24.0	6.2
516	SDM05-22 -DW-2	Navy	22	D	19Oct88	1051	11	LOSLK	8.4	18.0	5.8
517	SDM05-22 -DW-3	Navy	22	D	19Oct88	1056	11	LOSLK	6.6	19.0	6.6
518	SDM05-29 -SW-1	Navy	29	S	19Oct88	1101	0.5	LOSLK	3.5	11.0	5.0
519	SDM05-29 -SW-2	Navy	29	S	19Oct88	1105	0.5	LOSLK	5.5	8.3	8.8
520	SDM05-29 -SW-3	Navy	29	S	19Oct88	1109	0.5	LOSLK	8.7	23.0	8.3
521	SDM05-29 -DW-1	Navy	29	D	19Oct88	1101	11	LOSLK	8.4	13.0	7.0
522	SDM05-29 -DW-2	Navy	29	D	19Oct88	1104	11	LOSLK	5.6	8.5	7.5
523	SDM05-29 -DW-3	Navy	29	D	19Oct88	1109	11	LOSLK	8.2	12.0	6.3
524	SDM05-38A-SW-1	Navy	38A	S	19Oct88	1115	0.5	LOSLK	2.7	20.0	6.8
525	SDM05-38A-SW-2	Navy	38A	S	19Oct88	1120	0.5	LOSLK	5.5	24.0	5.8
526	SDM05-38A-SW-3	Navy	38A	S	19Oct88	1125	0.5	LOSLK	12.0	12.0	3.3
527	SDM05-38A-DW-1	Navy	38A	D	19Oct88	1114	13	LOSLK	3.9	5.6	3.3
528	SDM05-38A-DW-2	Navy	38A	D	19Oct88	1119	13	LOSLK	2.5	13.0	5.4
529	SDM05-38A-DW-3	Navy	38A	D	19Oct88	1124	10	LOSLK	12.0	12.0	4.6
530	SDM05-08 -SW-1	Yacht	08	S	19Oct88	1214	0.5	LOSLK	22.0	82.0	38.0
531	SDM05-08 -DW-1	Yacht	08	D	19Oct88	1215	6	LOSLK	12.0	47.0	26.0
532	SDM05-08C-SW-1	Yacht	08C	S	19Oct88	1218	0.5	LOSLK	15.0	91.0	43.0
533	SDM05-08C-DW-1	Yacht	08C	D	19Oct88	1219	7	LOSLK	2.8	17.0	15.0
534	SDM05-08D-SW-1	Yacht	08D	S	19Oct88	1210	0.5	LOSLK	23.0	100.0	57.0
535	SDM05-08D-DW-1	Yacht	08D	D	19Oct88	1211	4.5	LOSLK	11.0	74.0	35.0
536	SDM05-10C-SW-1	Yacht	10C	S	19Oct88	1303	0.5	LOSLK	17.0	40.0	23.0
537	SDM05-10C-DW-1	Yacht	10C	D	19Oct88	1304	4.5	LOSLK	13.0	53.0	51.0
538	SDM05-10D-SW-1	Yacht	10D	S	19Oct88	1259	0.5	LOSLK	14.0	36.0	24.0
539	SDM05-10D-DW-1	Yacht	10D	D	19Oct88	1300	4.5	LOSLK	11.0	73.0	21.0
540	SDM05-10E-SW-1	Yacht	10E	S	19Oct88	1308	0.5	LOSLK	19.0	53.0	26.0
541	SDM05-10E-DW-1	Yacht	10E	D	19Oct88	1309	4.5	LOSLK	15.0	91.0	35.0
542	SDM05-11 -SW-1	Yacht	11	S	19Oct88	1240	0.5	LOSLK	14.0	36.0	25.0
543	SDM05-11 -DW-1	Yacht	11	D	19Oct88	1241	7	LOSLK	14.0	31.0	36.0
544	SDM05-11A-SW-1	Yacht	11A	S	19Oct88	1237	0.5	LOSLK	7.7	20.0	11.0
545	SDM05-11A-DW-1	Yacht	11A	D	19Oct88	1236	7	LOSLK	4.6	9.3	9.3
546	SDM05-11B-SW-1	Yacht	11B	S	19Oct88	1245	0.5	LOSLK	8.0	32.0	17.0
547	SDM05-11B-DW-1	Yacht	11B	D	19Oct88	1246	6.5	LOSLK	4.0	19.0	45.0
548	SDM05-19 -SW-1	Yacht	19	S	19Oct88	1255	0.5	LOSLK	7.5	14.0	3.5
549	SDM05-19 -SW-2	Yacht	19	S	19Oct88	1258	0.5	LOSLK	7.2	18.0	8.7
550	SDM05-19 -SW-3	Yacht	19	S	19Oct88	1303	0.5	LOSLK	7.4	16.0	15.0
551	SDM05-19 -DW-1	Yacht	19	D	19Oct88	1254	11	LOSLK	5.3	13.0	5.8
552	SDM05-19 -DW-2	Yacht	19	D	19Oct88	1257	12	LOSLK	9.6	3.5	8.5
553	SDM05-19 -DW-3	Yacht	19	D	19Oct88	1302	12	LOSLK	6.3	12.0	10.0
554	SDM05-49B-SW-1	Yacht	49B	S	19Oct88	1150	0.5	LOSLK	10.0	35.0	64.0
555	SDM05-49B-DW-1	Yacht	49B	D	19Oct88	1152	3	LOSLK	9.6	29.0	32.0
556	SDM05-49C-SW-1	Yacht	49C	S	19Oct88	1155	0.5	LOSLK	10.0	28.0	35.0
557	SDM05-49C-DW-1	Yacht	49C	D	19Oct88	1156	3	LOSLK	8.1	29.0	24.0
558	SDM05-49D-SW-1	Yacht	49D	S	19Oct88	1200	0.5	LOSLK	13.0	29.0	20.0
559	SDM05-49D-DW-1	Yacht	49D	D	19Oct88	1159	3.5	LOSLK	11.0	33.0	23.0
560	SDM05-53 -SW-1	Yacht	53	S	19Oct88	1220	0.5	LOSLK	9.4	29.0	14.0
561	SDM05-53 -DW-1	Yacht	53	D	19Oct88	1220	4	LOSLK	6.7	21.0	4.1
562	SDM05-53A-SW-1	Yacht	53A	S	19Oct88	1224	0.5	LOSLK	19.0	14.0	10.0
563	SDM05-53A-DW-1	Yacht	53A	D	19Oct88	1223	4	LOSLK	8.7	24.0	13.0
564	SDM05-53B-SW-1	Yacht	53B	S	19Oct88	1227	0.5	LOSLK	11.0	59.0	26.0
565	SDM05-53B-DW-1	Yacht	53B	D	19Oct88	1226	4	LOSLK	13.0	56.0	21.0
566	SDM06-02B-SW-1	North	02B	S	18Jan89	1442	0.5	LOSLK	9.7	12.0	8.6
567	SDM06-02B-SW-2	North	02B	S	18Jan89	1446	0.5	LOSLK	.	10.0	8.2
568	SDM06-02B-SW-3	North	02B	S	18Jan89	1451	0.5	LOSLK	2.7	4.0	4.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
569	SDM06-02B-DW-1	North	02B	D	18Jan89	1441	14	LOSLK	6.5	4.0	15.0
570	SDM06-02B-DW-2	North	02B	D	18Jan89	1445	18.5	LOSLK	8.5	14.0	9.0
571	SDM06-02B-DW-3	North	02B	D	18Jan89	1450	18	LOSLK	10.0	14.0	13.0
572	SDM06-06A-SW-1	North	06A	S	18Jan89	1426	0.5	LOSLK	8.2	10.0	7.8
573	SDM06-06A-SW-2	North	06A	S	18Jan89	1429	0.5	LOSLK	11.0	5.8	14.0
574	SDM06-06A-SW-3	North	06A	S	18Jan89	1433	0.5	LOSLK	7.7	13.0	9.1
575	SDM06-06A-DW-1	North	06A	D	18Jan89	1425	10	LOSLK	13.0	5.9	11.0
576	SDM06-06A-DW-2	North	06A	D	18Jan89	1428	10	LOSLK	7.2	12.0	7.8
577	SDM06-06A-DW-3	North	06A	D	18Jan89	1432	11.5	LOSLK	6.6	16.0	8.3
578	SDM06-13 -SW-1	North	13	S	18Jan89	1410	0.5	LOSLK	8.2	15.0	8.7
579	SDM06-13 -SW-2	North	13	S	18Jan89	1413	0.5	LOSLK	9.3	9.2	10.0
580	SDM06-13 -SW-3	North	13	S	18Jan89	1418	0.5	LOSLK	9.1	12.0	13.0
581	SDM06-13 -DW-1	North	13	D	18Jan89	1409	14	LOSLK	11.0	17.0	11.0
582	SDM06-13 -DW-2	North	13	D	18Jan89	1412	13	LOSLK	9.5	11.0	19.0
583	SDM06-13 -DW-3	North	13	D	18Jan89	1417	14	LOSLK	7.3	11.0	9.6
584	SDM06-18 -SW-1	North	18	S	17Jan89	1152	0.5	LOSLK	12.0	9.1	9.7
585	SDM06-18 -SW-2	North	18	S	17Jan89	1155	0.5	LOSLK	5.8	9.2	11.0
586	SDM06-18 -SW-3	North	18	S	17Jan89	1158	0.5	LOSLK	6.2	9.8	9.2
587	SDM06-18 -DW-1	North	18	D	17Jan89	1153	12	LOSLK	7.0	9.1	9.6
588	SDM06-18 -DW-2	North	18	D	17Jan89	1156	11.5	LOSLK	14.0	15.0	16.0
589	SDM06-18 -DW-3	North	18	D	17Jan89	1159	12	LOSLK	5.8	8.8	8.7
590	SDM06-35 -SW-1	South	35	S	17Jan89	1244	0.5	LOSLK	2.8	7.8	5.6
591	SDM06-35 -SW-2	South	35	S	17Jan89	1247	0.5	LOSLK	2.5	9.7	2.4
592	SDM06-35 -SW-3	South	35	S	17Jan89	1249	0.5	LOSLK	9.6	10.0	3.5
593	SDM06-35 -DW-1	South	35	D	17Jan89	1243	2.5	LOSLK	6.0	10.0	3.5
594	SDM06-35 -DW-2	South	35	D	17Jan89	1246	3	LOSLK	5.0	9.7	2.8
595	SDM06-35 -DW-3	South	35	D	17Jan89	1248	3	LOSLK	4.6	8.3	1.6
596	SDM06-46 -SW-1	South	46	S	18Jan89	1212	0.5	LOSLK	6.4	9.0	2.8
597	SDM06-46 -SW-2	South	46	S	18Jan89	1214	0.5	LOSLK	2.4	6.0	2.8
598	SDM06-46 -SW-3	South	46	S	18Jan89	1216	0.5	LOSLK	10.0	14.0	4.5
599	SDM06-46 -DW-1	South	46	D	18Jan89	1211	9	LOSLK	7.2	11.0	4.9
600	SDM06-46 -DW-2	South	46	D	18Jan89	1213	7	LOSLK	9.1	15.0	8.4
601	SDM06-46 -DW-3	South	46	D	18Jan89	1215	6	LOSLK	6.6	11.0	5.0
602	SDM06-48 -SW-1	South	48	S	18Jan89	1248	0.5	LOSLK	.	9.5	3.5
603	SDM06-48 -SW-2	South	48	S	18Jan89	1250	0.5	LOSLK	18.0	16.0	6.7
604	SDM06-48 -SW-3	South	48	S	18Jan89	1252	0.5	LOSLK	2.0	5.8	0.9
605	SDM06-48 -DW-1	South	48	D	18Jan89	1247	1	LOSLK	2.0	6.1	3.5
606	SDM06-48 -DW-2	South	48	D	18Jan89	1249	1	LOSLK	6.6	10.0	4.9
607	SDM06-48 -DW-3	South	48	D	18Jan89	1251	1	LOSLK	.	7.8	1.2
608	SDM06-15 -SW-1	Navy	15	S	18Jan89	1357	0.5	LOSLK	0.0	6.6	6.0
609	SDM06-15 -SW-2	Navy	15	S	18Jan89	1400	0.5	LOSLK	3.2	5.4	4.7
610	SDM06-15 -SW-3	Navy	15	S	18Jan89	1403	0.5	LOSLK	3.2	5.4	6.0
611	SDM06-15 -DW-1	Navy	15	D	18Jan89	1356	14	LOSLK	9.5	8.6	13.0
612	SDM06-15 -DW-2	Navy	15	D	18Jan89	1359	14	LOSLK	8.6	12.0	13.0
613	SDM06-15 -DW-3	Navy	15	D	18Jan89	1402	14	LOSLK	9.1	15.0	15.0
614	SDM06-22 -SW-1	Navy	22	S	17Jan89	1212	0.5	LOSLK	4.2	16.0	7.5
615	SDM06-22 -SW-2	Navy	22	S	17Jan89	1215	0.5	LOSLK	8.3	14.0	8.0
616	SDM06-22 -SW-3	Navy	22	S	17Jan89	1217	0.5	LOSLK	8.3	14.0	7.0
617	SDM06-22 -DW-1	Navy	22	D	17Jan89	1211	11	LOSLK	5.8	12.0	6.0
618	SDM06-22 -DW-2	Navy	22	D	17Jan89	1214	10	LOSLK	6.7	13.0	5.8
619	SDM06-22 -DW-3	Navy	22	D	17Jan89	1216	12	LOSLK	7.3	12.0	8.3
620	SDM06-29 -SW-1	Navy	29	S	17Jan89	1220	0.5	LOSLK	1.3	7.0	6.1
621	SDM06-29 -SW-2	Navy	29	S	17Jan89	1224	0.5	LOSLK	7.4	9.9	10.0
622	SDM06-29 -SW-3	Navy	29	S	17Jan89	1227	0.5	LOSLK	6.7	16.0	5.8
623	SDM06-29 -DW-1	Navy	29	D	17Jan89	1221	9.5	LOSLK	3.8	9.3	7.7
624	SDM06-29 -DW-2	Navy	29	D	17Jan89	1223	9.5	LOSLK	2.7	6.3	3.8
625	SDM06-29 -DW-3	Navy	29	D	17Jan89	1226	10	LOSLK	2.3	7.9	4.8
626	SDM06-38A-SW-1	Navy	38A	S	17Jan89	1231	0.5	LOSLK	6.0	5.4	2.8
627	SDM06-38A-SW-2	Navy	38A	S	17Jan89	1233	0.5	LOSLK	3.3	6.6	3.4
628	SDM06-38A-SW-3	Navy	38A	S	17Jan89	1236	0.5	LOSLK	12.0	6.5	5.4
629	SDM06-38A-DW-1	Navy	38A	D	17Jan89	1230	12	LOSLK	4.0	5.7	2.2
630	SDM06-38A-DW-2	Navy	38A	D	17Jan89	1232	12	LOSLK	4.8	7.9	2.2
631	SDM06-38A-DW-3	Navy	38A	D	17Jan89	1238	12	LOSLK	5.4	7.1	6.9
632	SDM06-08 -SW-1	Yacht	08	S	17Jan89	1328	0.5	LOSLK	22.0	73.0	77.0
633	SDM06-08 -DW-1	Yacht	08	D	17Jan89	1327	5	LOSLK	5.5	82.0	140.0
634	SDM06-08C-SW-1	Yacht	08C	S	17Jan89	1325	0.5	LOSLK	10.0	74.0	84.0
635	SDM06-08C-DW-1	Yacht	08C	D	17Jan89	1324	6	LOSLK	.	72.0	110.0
636	SDM06-08D-SW-1	Yacht	08D	S	17Jan89	1332	0.5	LOSLK	14.0	78.0	120.0
637	SDM06-08D-DW-1	Yacht	08D	D	17Jan89	1331	4	LOSLK	10.0	83.0	96.0
638	SDM06-10C-SW-1	Yacht	10C	S	17Jan89	1425	0.5	LOSLK	19.0	67.0	64.0
639	SDM06-10C-DW-1	Yacht	10C	D	17Jan89	1424	3	LOSLK	21.0	63.0	61.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
640	SDM06-10D-SW-1	Yacht	10D	S	17Jan89	1419	0.5	LOSLK	13.0	37.0	31.0
641	SDM06-10D-DW-1	Yacht	10D	D	17Jan89	1418	3	LOSLK	7.5	36.0	37.0
642	SDM06-10E-SW-1	Yacht	10E	S	17Jan89	1429	0.5	LOSLK	14.0	62.0	59.0
643	SDM06-10E-DW-1	Yacht	10E	D	17Jan89	1428	3	LOSLK	14.0	66.0	110.0
644	SDM06-11 -SW-1	Yacht	11	S	17Jan89	1356	0.5	LOSLK	5.5	62.0	130.0
645	SDM06-11 -DW-1	Yacht	11	D	17Jan89	1355	6	LOSLK	4.5	48.0	140.0
646	SDM06-11A-SW-1	Yacht	11A	S	17Jan89	1353	0.5	LOSLK	.	61.0	260.0
647	SDM06-11A-DW-1	Yacht	11A	D	17Jan89	1352	6	LOSLK	.	47.0	160.0
648	SDM06-11B-SW-1	Yacht	11B	S	17Jan89	1359	0.5	LOSLK	.	67.0	230.0
649	SDM06-11B-DW-1	Yacht	11B	D	17Jan89	1358	5	LOSLK	15.0	49.0	96.0
650	SDM06-19 -SW-1	Yacht	19	S	17Jan89	1204	0.5	LOSLK	7.3	9.0	9.2
651	SDM06-19 -SW-2	Yacht	19	S	17Jan89	1206	0.5	LOSLK	5.4	11.0	9.2
652	SDM06-19 -SW-3	Yacht	19	S	17Jan89	1209	0.5	LOSLK	6.6	11.0	12.0
653	SDM06-19 -DW-1	Yacht	19	D	17Jan89	1205	10.5	LOSLK	23.0	20.0	12.0
654	SDM06-19 -DW-2	Yacht	19	D	17Jan89	1207	11	LOSLK	6.6	11.0	9.6
655	SDM06-19 -DW-3	Yacht	19	D	17Jan89	1208	10	LOSLK	5.4	9.3	7.8
656	SDM06-49B-SW-1	Yacht	49B	S	18Jan89	1234	0.5	LOSLK	36.0	44.0	51.0
657	SDM06-49B-DW-1	Yacht	49B	D	18Jan89	1233	3	LOSLK	15.0	34.0	35.0
658	SDM06-49C-SW-1	Yacht	49C	S	18Jan89	1230	0.5	LOSLK	5.5	4.9	13.0
659	SDM06-49C-DW-1	Yacht	49C	D	18Jan89	1229	3	LOSLK	5.1	15.0	18.0
660	SDM06-49D-SW-1	Yacht	49D	S	18Jan89	1227	0.5	LOSLK	29.0	47.0	19.0
661	SDM06-49D-DW-1	Yacht	49D	D	18Jan89	1226	3	LOSLK	15.0	32.0	19.0
662	SDM06-53 -SW-1	Yacht	53	S	18Jan89	1304	0.5	LOSLK	6.5	16.0	20.0
663	SDM06-53 -DW-1	Yacht	53	D	18Jan89	1303	2	LOSLK	11.0	41.0	13.0
664	SDM06-53A-SW-1	Yacht	53A	S	18Jan89	1308	0.5	LOSLK	8.2	15.0	16.0
665	SDM06-53A-DW-1	Yacht	53A	D	18Jan89	1307	2	LOSLK	2.9	13.0	14.0
666	SDM06-53B-SW-1	Yacht	53B	S	18Jan89	1313	0.5	LOSLK	30.0	39.0	19.0
667	SDM06-53B-DW-1	Yacht	53B	D	18Jan89	1312	2.5	LOSLK	11.0	21.0	13.0
668	SDM07-02B-SW-1	North	02B	S	19Apr89	1616	0.5	LOSLK	7.6	7.6	4.8
669	SDM07-02B-SW-2	North	02B	S	19Apr89	1619	0.5	LOSLK	11.0	15.0	4.0
670	SDM07-02B-SW-3	North	02B	S	19Apr89	1621	0.5	LOSLK	8.6	11.0	4.0
671	SDM07-02B-DW-1	North	02B	D	19Apr89	1615	13	LOSLK	5.0	4.6	2.0
672	SDM07-02B-DW-2	North	02B	D	19Apr89	1618	13.5	LOSLK	4.2	4.0	1.7
673	SDM07-02B-DW-3	North	02B	D	19Apr89	1620	12.5	LOSLK	7.7	5.3	2.0
674	SDM07-06A-SW-1	North	06A	S	19Apr89	1601	0.5	LOSLK	8.0	10.0	5.2
675	SDM07-06A-SW-2	North	06A	S	19Apr89	1604	0.5	LOSLK	.	11.0	4.6
676	SDM07-06A-SW-3	North	06A	S	19Apr89	1607	0.5	LOSLK	9.8	11.0	8.0
677	SDM07-06A-DW-1	North	06A	D	19Apr89	1600	12	LOSLK	4.8	6.5	5.6
678	SDM07-06A-DW-2	North	06A	D	19Apr89	1603	13	LOSLK	4.2	6.0	5.0
679	SDM07-06A-DW-3	North	06A	D	19Apr89	1606	13.5	LOSLK	5.6	6.0	4.2
680	SDM07-13 -SW-1	North	13	S	19Apr89	1448	0.5	LOSLK	4.6	16.0	3.8
681	SDM07-13 -SW-2	North	13	S	19Apr89	1451	0.5	LOSLK	.	21.0	6.0
682	SDM07-13 -SW-3	North	13	S	19Apr89	1455	0.5	LOSLK	15.0	20.0	4.4
683	SDM07-13 -DW-1	North	13	D	19Apr89	1447	13.5	LOSLK	5.4	13.0	7.0
684	SDM07-13 -DW-2	North	13	D	19Apr89	1450	15	LOSLK	4.4	12.0	8.0
685	SDM07-13 -DW-3	North	13	D	19Apr89	1454	16	LOSLK	4.8	11.0	3.8
686	SDM07-18 -SW-1	North	18	S	19Apr89	1416	0.5	LOSLK	13.0	16.0	2.6
687	SDM07-18 -SW-2	North	18	S	19Apr89	1421	0.5	LOSLK	6.6	14.0	1.1
688	SDM07-18 -SW-3	North	18	S	19Apr89	1424	0.5	LOSLK	.	31.0	7.4
689	SDM07-18 -DW-1	North	18	D	19Apr89	1415	13.5	LOSLK	5.4	12.0	2.6
690	SDM07-18 -DW-2	North	18	D	19Apr89	1420	13.5	LOSLK	9.8	13.0	6.6
691	SDM07-18 -DW-3	North	18	D	19Apr89	1423	14.5	LOSLK	2.8	12.0	4.4
692	SDM07-35 -SW-1	South	35	S	18Apr89	1335	0.5	LOSLK	6.6	9.8	2.6
693	SDM07-35 -SW-2	South	35	S	18Apr89	1339	0.5	LOSLK	4.8	8.6	2.6
694	SDM07-35 -SW-3	South	35	S	18Apr89	1344	0.5	LOSLK	11.0	18.0	2.4
695	SDM07-35 -DW-1	South	35	D	18Apr89	1337	3	LOSLK	2.8	9.2	0.6
696	SDM07-35 -DW-2	South	35	D	18Apr89	1340	3	LOSLK	3.2	7.6	2.6
697	SDM07-35 -DW-3	South	35	D	18Apr89	1343	3.8	LOSLK	2.6	12.0	2.0
698	SDM07-46 -SW-1	South	46	S	18Apr89	1437	0.5	LOSLK	9.4	11.0	1.1
699	SDM07-46 -SW-2	South	46	S	18Apr89	1440	0.5	LOSLK	8.0	8.2	1.1
700	SDM07-46 -SW-3	South	46	S	18Apr89	1443	0.5	LOSLK	9.4	8.2	0.6
701	SDM07-46 -DW-1	South	46	D	18Apr89	1436	8.5	LOSLK	6.2	7.8	2.4
702	SDM07-46 -DW-2	South	46	D	18Apr89	1439	7	LOSLK	2.2	12.0	3.0
703	SDM07-46 -DW-3	South	46	D	18Apr89	1442	7.5	LOSLK	2.6	11.0	3.0
704	SDM07-48 -SW-1	South	48	S	18Apr89	1409	0.5	LOSLK	11.0	14.0	1.1
705	SDM07-48 -SW-2	South	48	S	18Apr89	1412	0.5	LOSLK	.	12.0	2.5
706	SDM07-48 -SW-3	South	48	S	18Apr89	1415	0.5	LOSLK	2.6	13.0	0.1
707	SDM07-48 -DW-1	South	48	D	18Apr89	1408	2	LOSLK	6.2	7.6	0.7
708	SDM07-48 -DW-2	South	48	D	18Apr89	1411	1.5	LOSLK	6.0	5.4	0.6
709	SDM07-48 -DW-3	South	48	D	18Apr89	1414	1.5	LOSLK	4.6	4.4	0.6
710	SDM07-15 -SW-1	Navy	15	S	19Apr89	1432	0.5	LOSLK	4.2	21.0	6.4

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
711	SDM07-15 -SW-2	Navy	15	S	19Apr89	1438	0.5	LOSLK	2.8	29.0	4.8
712	SDM07-15 -SW-3	Navy	15	S	19Apr89	1443	0.5	LOSLK	2.2	22.0	5.6
713	SDM07-15 -DW-1	Navy	15	D	19Apr89	1431	12.5	LOSLK	3.0	16.0	6.4
714	SDM07-15 -DW-2	Navy	15	D	19Apr89	1437	14.5	LOSLK	3.2	14.0	7.0
715	SDM07-15 -DW-3	Navy	15	D	19Apr89	1442	14.5	LOSLK	3.2	13.0	9.8
716	SDM07-22 -SW-1	Navy	22	S	18Apr89	1526	0.5	LOSLK	7.4	13.0	5.2
717	SDM07-22 -SW-2	Navy	22	S	18Apr89	1529	0.5	LOSLK	7.2	14.0	4.2
718	SDM07-22 -SW-3	Navy	22	S	18Apr89	1533	0.5	LOSLK	5.4	9.2	3.0
719	SDM07-22 -DW-1	Navy	22	D	18Apr89	1525	12	LOSLK	3.4	6.4	3.2
720	SDM07-22 -DW-2	Navy	22	D	18Apr89	1528	11	LOSLK	4.2	7.2	3.0
721	SDM07-22 -DW-3	Navy	22	D	18Apr89	1532	11	LOSLK	4.4	6.8	2.0
722	SDM07-29 -SW-1	Navy	29	S	18Apr89	1510	0.5	LOSLK	4.1	10.0	0.9
723	SDM07-29 -SW-2	Navy	29	S	18Apr89	1514	0.5	LOSLK	5.4	8.6	2.2
724	SDM07-29 -SW-3	Navy	29	S	18Apr89	1516	0.5	LOSLK	7.8	16.0	4.2
725	SDM07-29 -DW-1	Navy	29	D	18Apr89	1509	12	LOSLK	3.4	7.8	2.1
726	SDM07-29 -DW-2	Navy	29	D	18Apr89	1513	11	LOSLK	7.8	9.6	3.0
727	SDM07-29 -DW-3	Navy	29	D	18Apr89	1515	11	LOSLK	3.2	8.5	2.5
728	SDM07-38A-SW-1	Navy	38A	S	18Apr89	1456	0.5	LOSLK	8.8	12.0	3.0
729	SDM07-38A-SW-2	Navy	38A	S	18Apr89	1501	0.5	LOSLK	11.0	12.0	1.4
730	SDM07-38A-SW-3	Navy	38A	S	18Apr89	1504	0.5	LOSLK	6.8	12.0	1.1
731	SDM07-38A-DW-1	Navy	38A	D	18Apr89	1455	11	LOSLK	3.8	8.2	0.5
732	SDM07-38A-DW-2	Navy	38A	D	18Apr89	1500	14	LOSLK	2.6	11.0	2.0
733	SDM07-38A-DW-3	Navy	38A	D	18Apr89	1503	13.5	LOSLK	4.8	10.0	2.2
734	SDM07-08 -SW-1	Yacht	08	S	19Apr89		0.5	LOSLK	32.0	56.0	42.0
735	SDM07-08 -DW-1	Yacht	08	D	19Apr89		4.5	LOSLK	9.7	7.6	8.4
736	SDM07-08C-SW-1	Yacht	08C	S	19Apr89		0.5	LOSLK	29.0	39.0	29.0
737	SDM07-08C-DW-1	Yacht	08C	D	19Apr89		7	LOSLK	1.7	5.2	6.0
738	SDM07-08D-SW-1	Yacht	08D	S	19Apr89		0.5	LOSLK	55.0	40.0	27.0
739	SDM07-08D-DW-1	Yacht	08D	D	19Apr89		4	LOSLK	18.0	22.0	19.0
740	SDM07-10C-SW-1	Yacht	10C	S	19Apr89		0.5	LOSLK	21.0	64.0	15.0
741	SDM07-10C-DW-1	Yacht	10C	D	19Apr89		3.5	LOSLK	9.9	28.0	10.0
742	SDM07-10D-SW-1	Yacht	10D	S	19Apr89		0.5	LOSLK	14.0	40.0	11.0
743	SDM07-10D-DW-1	Yacht	10D	D	19Apr89		4.5	LOSLK	5.1	18.0	8.0
744	SDM07-10E-SW-1	Yacht	10E	S	19Apr89		0.5	LOSLK	15.0	57.0	17.0
745	SDM07-10E-DW-1	Yacht	10E	D	19Apr89		4	LOSLK	8.5	28.0	9.5
746	SDM07-11 -SW-1	Yacht	11	S	19Apr89		0.5	LOSLK	17.0	52.0	51.0
747	SDM07-11 -DW-1	Yacht	11	D	19Apr89		6.5	LOSLK	.	.	.
748	SDM07-11A-SW-1	Yacht	11A	S	19Apr89		0.5	LOSLK	23.0	37.0	16.0
749	SDM07-11A-DW-1	Yacht	11A	D	19Apr89		6	LOSLK	6.0	14.0	12.0
750	SDM07-11B-SW-1	Yacht	11B	S	19Apr89		0.5	LOSLK	26.0	64.0	44.0
751	SDM07-11B-DW-1	Yacht	11B	D	19Apr89		6	LOSLK	11.0	19.0	12.0
752	SDM07-19 -SW-1	Yacht	19	S	19Apr89	1404	0.5	LOSLK	9.2	19.0	5.8
753	SDM07-19 -SW-2	Yacht	19	S	19Apr89	1408	0.5	LOSLK	2.6	12.0	2.2
754	SDM07-19 -SW-3	Yacht	19	S	19Apr89	1411	0.5	LOSLK	2.4	16.0	4.4
755	SDM07-19 -DW-1	Yacht	19	D	19Apr89	1403	11	LOSLK	6.0	12.0	7.4
756	SDM07-19 -DW-2	Yacht	19	D	19Apr89	1407	10.5	LOSLK	7.0	9.8	5.4
757	SDM07-19 -DW-3	Yacht	19	D	19Apr89	1410	11.5	LOSLK	4.4	11.0	2.6
758	SDM07-49B-SW-1	Yacht	49B	S	18Apr89		0.5	LOSLK	14.0	29.0	3.2
759	SDM07-49B-DW-1	Yacht	49B	D	18Apr89		3.5	LOSLK	7.7	20.0	8.4
760	SDM07-49C-SW-1	Yacht	49C	S	18Apr89		0.5	LOSLK	10.0	28.0	18.0
761	SDM07-49C-DW-1	Yacht	49C	D	18Apr89		6.5	LOSLK	8.1	20.0	8.5
762	SDM07-49D-SW-1	Yacht	49D	S	18Apr89		0.5	LOSLK	14.0	24.0	8.0
763	SDM07-49D-DW-1	Yacht	49D	D	18Apr89		3	LOSLK	12.0	23.0	9.9
764	SDM07-53 -SW-1	Yacht	53	S	18Apr89		0.5	LOSLK	10.0	48.0	22.0
765	SDM07-53 -DW-1	Yacht	53	D	18Apr89		3.5	LOSLK	6.4	23.0	6.7
766	SDM07-53A-SW-1	Yacht	53A	S	18Apr89		0.5	LOSLK	15.0	49.0	22.0
767	SDM07-53A-DW-1	Yacht	53A	D	18Apr89		3.5	LOSLK	9.2	29.0	5.9
768	SDM07-53B-SW-1	Yacht	53B	S	18Apr89		0.5	LOSLK	14.0	52.0	10.0
769	SDM07-53B-DW-1	Yacht	53B	D	18Apr89		3.5	LOSLK	14.0	25.0	10.0
770	SDM08-02B-SW-1	North	02B	S	3Aug89	1738	0.5	LOSLK	11.0	7.1	2.6
771	SDM08-02B-SW-2	North	02B	S	3Aug89	1741	0.5	LOSLK	4.3	3.3	1.0
772	SDM08-02B-SW-3	North	02B	S	3Aug89	1744	0.5	LOSLK	5.6	6.8	2.3
773	SDM08-02B-DW-1	North	02B	D	3Aug89	1738	13	LOSLK	4.5	3.2	1.7
774	SDM08-02B-DW-2	North	02B	D	3Aug89	1741	14	LOSLK	14.0	3.1	1.4
775	SDM08-02B-DW-3	North	02B	D	3Aug89	1744	14	LOSLK	3.5	2.9	1.2
776	SDM08-06A-SW-1	North	06A	S	3Aug89	1722	0.5	LOSLK	9.3	17.0	6.6
777	SDM08-06A-SW-2	North	06A	S	3Aug89	1725	0.5	LOSLK	15.0	18.0	4.9
778	SDM08-06A-SW-3	North	06A	S	3Aug89	1727	0.5	LOSLK	14.0	17.0	4.3
779	SDM08-06A-DW-1	North	06A	D	3Aug89	1722	13	LOSLK	7.1	12.0	2.0
780	SDM08-06A-DW-2	North	06A	D	3Aug89	1725	14	LOSLK	7.6	11.0	2.0
781	SDM08-06A-DW-3	North	06A	D	3Aug89	1727	13	LOSLK	9.2	12.0	3.6

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
782	SDM08-13 -SW-1	North	13	S	3Aug89	1630	0.5	LOSLK	5.6	9.0	4.0
783	SDM08-13 -SW-2	North	13	S	3Aug89	1632	0.5	LOSLK	12.0	13.0	2.3
784	SDM08-13 -SW-3	North	13	S	3Aug89	1635	0.5	LOSLK	8.4	8.9	3.6
785	SDM08-13 -DW-1	North	13	D	3Aug89	1630	15	LOSLK	5.0	7.9	4.0
786	SDM08-13 -DW-2	North	13	D	3Aug89	1632	15	LOSLK	7.4	11.0	3.5
787	SDM08-13 -DW-3	North	13	D	3Aug89	1635	17	LOSLK	.	18.0	5.9
788	SDM08-18 -SW-1	North	18	S	3Aug89	1556	0.5	LOSLK	9.9	7.3	3.5
789	SDM08-18 -SW-2	North	18	S	3Aug89	1600	0.5	LOSLK	8.2	17.0	2.0
790	SDM08-18 -SW-3	North	18	S	3Aug89	1604	0.5	LOSLK	7.2	8.3	3.7
791	SDM08-18 -DW-1	North	18	D	3Aug89	1555	13	LOSLK	7.6	18.0	2.4
792	SDM08-18 -DW-2	North	18	D	3Aug89	1600	14	LOSLK	6.9	14.0	3.8
793	SDM08-18 -DW-3	North	18	D	3Aug89	1604	13	LOSLK	6.3	8.2	7.0
794	SDM08-35 -SW-1	South	35	S	2Aug89	1722	0.5	LOSLK	12.0	5.2	2.2
795	SDM08-35 -SW-2	South	35	S	2Aug89	1725	0.5	LOSLK	.	9.4	0.4
796	SDM08-35 -SW-3	South	35	S	2Aug89	1728	0.5	LOSLK	9.9	2.7	1.5
797	SDM08-35 -DW-1	South	35	D	2Aug89	1722	4	LOSLK	4.9	6.2	0.9
798	SDM08-35 -DW-2	South	35	D	2Aug89	1725	4	LOSLK	7.6	13.0	0.5
799	SDM08-35 -DW-3	South	35	D	2Aug89	1728	5	LOSLK	10.0	5.7	0.9
800	SDM08-46 -SW-1	South	46	S	2Aug89	1619	0.5	LOSLK	4.9	3.4	1.5
801	SDM08-46 -SW-2	South	46	S	2Aug89	1621	0.5	LOSLK	10.0	9.7	2.8
802	SDM08-46 -SW-3	South	46	S	2Aug89	1623	0.5	LOSLK	4.7	9.5	2.2
803	SDM08-46 -DW-1	South	46	D	2Aug89	1619	8	LOSLK	4.7	6.9	1.5
804	SDM08-46 -DW-2	South	46	D	2Aug89	1621	7	LOSLK	.	.	.
805	SDM08-46 -DW-3	South	46	D	2Aug89	1623	7	LOSLK	4.1	8.6	3.7
806	SDM08-48 -SW-1	South	48	S	2Aug89	1650	0.5	LOSLK	9.1	3.3	1.4
807	SDM08-48 -SW-2	South	48	S	2Aug89	1652	0.5	LOSLK	6.7	5.7	0.0
808	SDM08-48 -SW-3	South	48	S	2Aug89	1655	0.5	LOSLK	8.5	10.0	0.0
809	SDM08-48 -DW-1	South	48	D	2Aug89	1650	3	LOSLK	6.2	5.3	0.3
810	SDM08-48 -DW-2	South	48	D	2Aug89	1652	2	LOSLK	9.5	11.0	0.5
811	SDM08-48 -DW-3	South	48	D	2Aug89	1655	3	LOSLK	7.2	4.0	0.1
812	SDM08-15 -SW-1	Navy	15	S	3Aug89	1615	0.5	LOSLK	5.9	7.8	4.2
813	SDM08-15 -SW-2	Navy	15	S	3Aug89	1619	0.5	LOSLK	6.7	8.3	4.6
814	SDM08-15 -SW-3	Navy	15	S	3Aug89	1623	0.5	LOSLK	9.1	14.0	2.7
815	SDM08-15 -DW-1	Navy	15	D	3Aug89	1615	15	LOSLK	6.0	12.0	4.9
816	SDM08-15 -DW-2	Navy	15	D	3Aug89	1619	15	LOSLK	4.5	9.5	6.1
817	SDM08-15 -DW-3	Navy	15	D	3Aug89	1623	15	LOSLK	4.5	8.1	3.9
818	SDM08-22 -SW-1	Navy	22	S	2Aug89	1537	0.5	LOSLK	12.0	12.0	4.2
819	SDM08-22 -SW-2	Navy	22	S	2Aug89	1540	0.5	LOSLK	8.9	13.0	7.4
820	SDM08-22 -SW-3	Navy	22	S	2Aug89	1545	0.5	LOSLK	8.0	9.4	6.8
821	SDM08-22 -DW-1	Navy	22	D	2Aug89	1537	11	LOSLK	8.9	14.0	5.2
822	SDM08-22 -DW-2	Navy	22	D	2Aug89	1540	11	LOSLK	22.0	14.0	5.2
823	SDM08-22 -DW-3	Navy	22	D	2Aug89	1545	11	LOSLK	19.0	15.0	6.5
824	SDM08-29 -SW-1	Navy	29	S	2Aug89	1551	0.5	LOSLK	11.0	7.0	4.4
825	SDM08-29 -SW-2	Navy	29	S	2Aug89	1553	0.5	LOSLK	16.0	8.2	4.0
826	SDM08-29 -SW-3	Navy	29	S	2Aug89	1557	0.5	LOSLK	6.7	10.0	5.7
827	SDM08-29 -DW-1	Navy	29	D	2Aug89	1551	11	LOSLK	5.1	10.0	4.4
828	SDM08-29 -DW-2	Navy	29	D	2Aug89	1553	10	LOSLK	4.7	7.1	4.0
829	SDM08-29 -DW-3	Navy	29	D	2Aug89	1557	11	LOSLK	9.3	10.0	7.1
830	SDM08-38A-SW-1	Navy	38A	S	2Aug89	1601	0.5	LOSLK	11.0	11.0	3.4
831	SDM08-38A-SW-2	Navy	38A	S	2Aug89	1605	0.5	LOSLK	7.1	11.0	4.0
832	SDM08-38A-SW-3	Navy	38A	S	2Aug89	1609	0.5	LOSLK	9.5	11.0	5.0
833	SDM08-38A-DW-1	Navy	38A	D	2Aug89	1601	13	LOSLK	4.3	8.7	2.8
834	SDM08-38A-DW-2	Navy	38A	D	2Aug89	1605	13	LOSLK	7.1	9.0	2.6
835	SDM08-38A-DW-3	Navy	38A	D	2Aug89	1609	13	LOSLK	6.1	12.0	4.0
836	SDM08-08 -SW-1	Yacht	08	S	3Aug89	1800	0.5	LOSLK	11.0	37.0	31.0
837	SDM08-08 -DW-1	Yacht	08	D	3Aug89	1800	6	LOSLK	.	29.0	14.0
838	SDM08-08C-SW-1	Yacht	08C	S	3Aug89	1803	0.5	LOSLK	23.0	53.0	42.0
839	SDM08-08C-DW-1	Yacht	08C	D	3Aug89	1803	7	LOSLK	11.0	19.0	14.0
840	SDM08-08D-SW-1	Yacht	08D	S	3Aug89	1758	0.5	LOSLK	31.0	79.0	67.0
841	SDM08-08D-DW-1	Yacht	08D	D	3Aug89	1758	5	LOSLK	14.0	19.0	15.0
842	SDM08-10C-SW-1	Yacht	10C	S	3Aug89	1654	0.5	LOSLK	18.0	16.0	15.0
843	SDM08-10C-DW-1	Yacht	10C	D	3Aug89	1654	4	LOSLK	13.0	16.0	13.0
844	SDM08-10D-SW-1	Yacht	10D	S	3Aug89	1657	0.5	LOSLK	17.0	15.0	16.0
845	SDM08-10D-DW-1	Yacht	10D	D	3Aug89	1657	4	LOSLK	15.0	18.0	7.5
846	SDM08-10E-SW-1	Yacht	10E	S	3Aug89	1648	0.5	LOSLK	18.0	28.0	20.0
847	SDM08-10E-DW-1	Yacht	10E	D	3Aug89	1648	4	LOSLK	19.0	26.0	17.0
848	SDM08-11 -SW-1	Yacht	11	S	3Aug89	1713	0.5	LOSLK	17.0	40.0	26.0
849	SDM08-11 -DW-1	Yacht	11	D	3Aug89	1713	6	LOSLK	5.7	14.0	7.3
850	SDM08-11A-SW-1	Yacht	11A	S	3Aug89	1716	0.5	LOSLK	16.0	30.0	34.0
851	SDM08-11A-DW-1	Yacht	11A	D	3Aug89	1716	6	LOSLK	12.0	15.0	9.4
852	SDM08-11B-SW-1	Yacht	11B	S	3Aug89	1708	0.5	LOSLK	19.0	56.0	56.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
853	SDM08-11B-DW-1	Yacht	11B	D	3Aug89	1708	5	LOSLK	.	23.0	14.0
854	SDM08-19 -SW-1	Yacht	19	S	2Aug89	1520	0.5	LOSLK	9.0	13.0	8.1
855	SDM08-19 -SW-2	Yacht	19	S	2Aug89	1525	0.5	LOSLK	26.0	8.1	7.7
856	SDM08-19 -SW-3	Yacht	19	S	2Aug89	1530	0.5	LOSLK	8.8	13.0	5.2
857	SDM08-19 -DW-1	Yacht	19	D	2Aug89	1520	11	LOSLK	8.4	16.0	13.0
858	SDM08-19 -DW-2	Yacht	19	D	2Aug89	1525	11	LOSLK	10.0	13.0	12.0
859	SDM08-19 -DW-3	Yacht	19	D	2Aug89	1530	10	LOSLK	8.7	11.0	6.5
860	SDM08-49B-SW-1	Yacht	49B	S	2Aug89	1633	0.5	LOSLK	4.6	16.0	7.9
861	SDM08-49B-DW-1	Yacht	49B	D	2Aug89	1633	4	LOSLK	16.0	21.0	13.0
862	SDM08-49C-SW-1	Yacht	49C	S	2Aug89	1636	0.5	LOSLK	53.0	30.0	48.0
863	SDM08-49C-DW-1	Yacht	49C	D	2Aug89	1636	7	LOSLK	7.8	33.0	13.0
864	SDM08-49D-SW-1	Yacht	49D	S	2Aug89	1638	0.5	LOSLK	22.0	25.0	25.0
865	SDM08-49D-DW-1	Yacht	49D	D	2Aug89	1638	3	LOSLK	29.0	20.0	11.0
866	SDM08-53 -SW-1	Yacht	53	S	2Aug89	1700	0.5	LOSLK	11.0	12.0	7.8
867	SDM08-53 -DW-1	Yacht	53	D	2Aug89	1700	4	LOSLK	12.0	8.0	5.5
868	SDM08-53A-SW-1	Yacht	53A	S	2Aug89	1703	0.5	LOSLK	12.0	19.0	9.6
869	SDM08-53A-DW-1	Yacht	53A	D	2Aug89	1703	4	LOSLK	8.2	7.6	3.0
870	SDM08-53B-SW-1	Yacht	53B	S	2Aug89	1706	0.5	LOSLK	14.0	22.0	8.1
871	SDM08-53B-DW-1	Yacht	53B	D	2Aug89	1706	4	LOSLK	9.0	13.0	7.4

Tissue

Obs	sample	region	station	date	time	species	mbtcl_t	dbtcl_t	tbtcl_t
1	SDM2 -02B-T-1	North	02B	16Oct86	1344	Mytilus edulis	.	0.079	0.140
2	SDM2 -02B-T-2	North	02B	16Oct86	1345	Mytilus edulis	.	0.000	0.080
3	SDM2 -02B-T-3	North	02B	16Oct86	1346	Mytilus edulis	.	0.000	0.086
4	SDM2 -06A-T-1	North	06A	14Oct86	1429	Mytilus edulis	.	0.087	0.120
5	SDM2 -06A-T-2	North	06A	14Oct86	1430	Mytilus edulis	.	0.076	0.093
6	SDM2 -06A-T-3	North	06A	14Oct86	1431	Mytilus edulis	.	0.079	0.120
7	SDM2 -07 -T-1	Yacht	07	15Oct86	1614	Mytilus edulis	.	0.840	0.600
8	SDM2 -07 -T-2	Yacht	07	15Oct86	1615	Mytilus edulis	.	0.980	0.830
9	SDM2 -07 -T-3	Yacht	07	15Oct86	1616	Mytilus edulis	.	0.940	0.650
10	SDM2 -10 -T-1	Yacht	10	16Oct86	1429	Mytilus edulis	.	0.710	0.690
11	SDM2 -10 -T-2	Yacht	10	16Oct86	1430	Mytilus edulis	.	0.780	0.640
12	SDM2 -10 -T-3	Yacht	10	16Oct86	1431	Mytilus edulis	.	0.930	0.670
13	SDM2 -15A-T-1	Navy	15A	16Oct86	1359	Mytilus edulis	.	0.240	0.230
14	SDM2 -15A-T-2	Navy	15A	16Oct86	1400	Mytilus edulis	.	0.270	0.240
15	SDM2 -15A-T-3	Navy	15A	16Oct86	1401	Mytilus edulis	.	0.230	0.180
16	SDM2 -18 -T-1	North	18	14Oct86	1454	Mytilus edulis	.	0.410	0.360
17	SDM2 -18 -T-2	North	18	14Oct86	1455	Mytilus edulis	.	0.440	0.340
18	SDM2 -18 -T-3	North	18	14Oct86	1456	Mytilus edulis	.	0.360	0.380
19	SDM2 -26C-T-1	South	26C	15Oct86	1544	Mytilus edulis	.	0.280	0.180
20	SDM2 -26C-T-2	South	26C	15Oct86	1545	Mytilus edulis	.	0.320	0.220
21	SDM2 -26C-T-3	South	26C	15Oct86	1546	Mytilus edulis	.	0.340	0.210
22	SDM2 -38A-T-1	Navy	38A	15Oct86	1451	Mytilus edulis	.	0.160	0.220
23	SDM2 -38A-T-2	Navy	38A	15Oct86	1452	Mytilus edulis	.	0.160	0.230
24	SDM2 -38A-T-3	Navy	38A	15Oct86	1453	Mytilus edulis	.	0.180	0.210
25	SDM2 -53B-T-1	Yacht	53B	15Oct86	1054	Mytilus edulis	.	1.200	0.890
26	SDM2 -53B-T-2	Yacht	53B	15Oct86	1055	Mytilus edulis	.	1.100	0.880
27	SDM2 -53B-T-3	Yacht	53B	15Oct86	1056	Mytilus edulis	.	0.840	0.700
28	SDM3 -02B-T-1	North	02B	21Oct87	1604	Mytilus edulis	.	0.062	0.110
29	SDM3 -02B-T-2	North	02B	21Oct87	1605	Mytilus edulis	.	0.054	0.110
30	SDM3 -02B-T-3	North	02B	21Oct87	1606	Mytilus edulis	.	0.160	0.130
31	SDM3 -06A-T-1	North	06A	21Oct87	1559	Mytilus edulis	.	0.230	0.230
32	SDM3 -06A-T-2	North	06A	21Oct87	1600	Mytilus edulis	.	0.220	0.190
33	SDM3 -06A-T-3	North	06A	21Oct87	1601	Mytilus edulis	.	0.190	0.270
34	SDM3 -07 -T-1	Yacht	07	21Oct87	1619	Mytilus edulis	.	1.900	1.600
35	SDM3 -07 -T-2	Yacht	07	21Oct87	1620	Mytilus edulis	.	1.500	1.300
36	SDM3 -07 -T-3	Yacht	07	21Oct87	1621	Mytilus edulis	.	2.100	1.800
37	SDM3 -11C-T-1	Yacht	11C	21Oct87	1544	Mytilus edulis	.	0.340	0.870
38	SDM3 -11C-T-2	Yacht	11C	21Oct87	1545	Mytilus edulis	.	0.370	0.690
39	SDM3 -11C-T-3	Yacht	11C	21Oct87	1546	Mytilus edulis	.	0.520	0.930
40	SDM3 -15A-T-1	Navy	15A	21Oct87	1509	Mytilus edulis	.	0.300	0.180
41	SDM3 -15A-T-2	Navy	15A	21Oct87	1510	Mytilus edulis	.	0.170	0.320
42	SDM3 -15A-T-3	Navy	15A	21Oct87	1511	Mytilus edulis	.	0.160	0.170
43	SDM3 -18 -T-1	North	18	21Oct87	1444	Mytilus edulis	.	0.300	0.380
44	SDM3 -18 -T-2	North	18	21Oct87	1444	Mytilus edulis	.	0.280	0.330
45	SDM3 -18 -T-3	North	18	21Oct87	1444	Mytilus edulis	.	0.100	0.290
46	SDM3 -22 -T-1	Navy	22	21Oct87	1414	Mytilus edulis	.	0.230	0.320
47	SDM3 -22 -T-2	Navy	22	21Oct87	1415	Mytilus edulis	.	0.230	0.350
48	SDM3 -22 -T-3	Navy	22	21Oct87	1416	Mytilus edulis	.	0.240	0.420
49	SDM3 -26C-T-1	South	26C	21Oct87	1429	Mytilus edulis	.	0.170	0.170
50	SDM3 -26C-T-2	South	26C	21Oct87	1430	Mytilus edulis	.	0.200	0.210
51	SDM3 -26C-T-3	South	26C	21Oct87	1431	Mytilus edulis	.	0.240	0.200
52	SDM3 -44A-T-1	South	44A	21Oct87	1330	Mytilus edulis	.	0.150	0.230
53	SDM3 -44A-T-2	South	44A	21Oct87	1340	Mytilus edulis	.	0.140	0.200
54	SDM3 -44A-T-3	South	44A	21Oct87	1350	Mytilus edulis	.	0.200	0.180
55	SDM3 -53B-T-1	Yacht	53B	21Oct87	1259	Mytilus edulis	.	1.200	1.200
56	SDM3 -53B-T-2	Yacht	53B	21Oct87	1300	Mytilus edulis	.	1.300	1.700
57	SDM3 -53B-T-3	Yacht	53B	21Oct87	1301	Mytilus edulis	.	1.100	1.200
58	SDM4 -18 -T-1	North	18	24Feb88	1146	Mytilus edulis	0.096	0.250	0.370
59	SDM4 -18 -T-2	North	18	24Feb88	1146	Mytilus edulis	0.120	0.240	0.360
60	SDM4 -18 -T-3	North	18	24Feb88	1146	mytilus edulis	0.140	0.250	0.410
61	SDM4 -19 -T-1	Yacht	19	24Feb88	1141	Mytilus edulis	.	0.350	0.540
62	SDM4 -19 -T-2	Yacht	19	24Feb88	1141	Mytilus edulis	.	0.340	0.510
63	SDM4 -19 -T-3	Yacht	19	24Feb88	1141	Mytilus edulis	.	0.320	0.460
64	SDM4 -26C-T-1	South	26C	24Feb88	1000	Mytilus edulis	.	0.160	0.240
65	SDM4 -26C-T-2	South	26C	24Feb88	1000	Mytilus edulis	.	0.150	0.210
66	SDM4 -26C-T-3	South	26C	24Feb88	1000	Mytilus edulis	.	0.180	0.280
67	SDM4 -37A-T-1	Navy	37A	24Feb88	1130	Mytilus edulis	0.160	0.180	0.300
68	SDM4 -37A-T-2	Navy	37A	24Feb88	1130	Mytilus edulis	0.000	0.180	0.330
69	SDM4 -37A-T-3	Navy	37A	24Feb88	1130	Mytilus edulis	0.050	0.160	0.250
70	SDM4 -40A-T-1	Navy	40A	24Feb88	1122	Mytilus edulis	0.150	0.320	0.520
71	SDM4 -40A-T-2	Navy	40A	24Feb88	1122	Mytilus edulis	0.058	0.200	0.280

Tissue

Obs	sample	region	station	date	time	species	mbtcl_t	dbtcl_t	tbtcl_t
72	SDM4 -40A-T-3	Navy	40A	24Feb88	1122	Mytilus edulis	0.052	0.210	0.340
73	SDM4 -44A-T-1	South	44A	24Feb88	1025	Mytilus edulis	0.028	0.230	0.460
74	SDM4 -44A-T-2	South	44A	24Feb88	1025	Mytilus edulis	0.022	0.190	0.340
75	SDM4 -44A-T-3	South	44A	24Feb88	1025	Mytilus edulis	0.000	0.500	0.380
76	SDM4 -53B-T-1	Yacht	53B	24Feb88	1130	Mytilus edulis	.	1.100	1.900
77	SDM4 -53B-T-2	Yacht	53B	24Feb88	1130	Mytilus edulis	.	1.100	2.600
78	SDM4 -53B-T-3	Yacht	53B	24Feb88	1130	Mytilus edulis	.	1.000	1.900
79	SDM4 -02B-T-1	North	02B	25Feb88	1030	Mytilus edulis	.	0.210	0.160
80	SDM4 -02B-T-2	North	02B	25Feb88	1030	Mytilus edulis	.	0.140	0.120
81	SDM4 -02B-T-3	North	02B	25Feb88	1030	Mytilus edulis	.	0.170	0.130
82	SDM4 -06A-T-1	North	06A	25Feb88	1130	Mytilus edulis	.	0.084	0.250
83	SDM4 -06A-T-2	North	06A	25Feb88	1130	Mytilus edulis	.	0.098	0.220
84	SDM4 -06A-T-3	North	06A	25Feb88	1130	Mytilus edulis	.	0.098	0.190
85	SDM4 -07 -T-1	Yacht	07	25Feb88	1017	Mytilus edulis	.	0.700	1.100
86	SDM4 -07 -T-2	Yacht	07	25Feb88	1017	Mytilus edulis	.	0.670	0.950
87	SDM4 -07 -T-3	Yacht	07	25Feb88	1017	Mytilus edulis	.	0.700	0.840
88	SDM4 -11C-T-1	Yacht	11C	25Feb88	1047	Mytilus edulis	0.300	0.470	0.640
89	SDM4 -11C-T-2	Yacht	11C	25Feb88	1047	Mytilus edulis	0.170	0.370	0.470
90	SDM4 -11C-T-3	Yacht	11C	25Feb88	1047	Mytilus edulis	0.180	0.360	0.490
91	SDM4 -15A-T-1	Navy	15A	25Feb88	1151	Mytilus edulis	0.170	0.310	0.520
92	SDM4 -15A-T-2	Navy	15A	25Feb88	1151	Mytilus edulis	0.086	0.290	0.450
93	SDM4 -15A-T-3	Navy	15A	25Feb88	1151	Mytilus edulis	0.092	0.300	0.510
94	SDM5 -53 -T-1	Yacht	53	25Oct88	1515	Mytilus edulis	0.280	0.770	0.540
95	SDM5 -53 -T-2	Yacht	53	25Oct88	1515	Mytilus edulis	0.310	0.780	0.540
96	SDM5 -53 -T-3	Yacht	53	25Oct88	1515	Mytilus edulis	0.300	0.780	0.520
97	SDM5 -22 -T-1	Navy	22	25Oct88	1440	Mytilus edulis	0.058	0.170	0.200
98	SDM5 -22 -T-2	Navy	22	25Oct88	1440	Mytilus edulis	0.000	0.160	0.200
99	SDM5 -22 -T-3	Navy	22	25Oct88	1440	Mytilus edulis	0.000	0.180	0.210
100	SDM5 -26C-T-1	South	26C	25Oct88	1450	Mytilus edulis	0.000	0.210	0.120
101	SDM5 -26C-T-2	South	26C	25Oct88	1450	Mytilus edulis	0.074	0.200	0.094
102	SDM5 -26C-T-3	South	26C	25Oct88	1450	Mytilus edulis	0.000	0.200	0.100
103	SDM5 -18 -T-1	North	18	25Oct88	1425	Mytilus edulis	0.058	0.180	0.130
104	SDM5 -18 -T-2	North	18	25Oct88	1425	Mytilus edulis	0.030	0.200	0.130
105	SDM5 -18 -T-3	North	18	25Oct88	1425	Mytilus edulis	0.060	0.220	0.150
106	SDM5 -15 -T-1	Navy	15	25Oct88	1410	Mytilus edulis	0.000	0.140	0.180
107	SDM5 -15 -T-2	Navy	15	25Oct88	1410	Mytilus edulis	0.000	0.130	0.160
108	SDM5 -15 -T-3	Navy	15	25Oct88	1410	Mytilus edulis	0.000	0.140	0.180
109	SDM5 -10A-T-1	Yacht	10A	25Oct88	1350	Mytilus edulis	0.044	0.180	0.380
110	SDM5 -10A-T-2	Yacht	10A	25Oct88	1350	Mytilus edulis	0.040	0.180	0.450
111	SDM5 -10A-T-3	Yacht	10A	25Oct88	1350	Mytilus edulis	0.038	0.170	0.420
112	SDM5 -06A-T-1	North	06A	25Oct88	1340	Mytilus edulis	0.000	0.080	0.190
113	SDM5 -06A-T-2	North	06A	25Oct88	1340	Mytilus edulis	0.000	0.088	0.130
114	SDM5 -06A-T-3	North	06A	25Oct88	1340	Mytilus edulis	0.000	0.082	0.120
115	SDM5 -02B-T-1	North	02B	25Oct88	1330	Mytilus edulis	0.000	0.016	0.052
116	SDM5 -02B-T 2	North	02B	25Oct88	1330	Mytilus edulis	0.000	0.020	0.052
117	SDM5 -02B-T-3	North	02B	25Oct88	1330	Mytilus edulis	0.000	0.018	0.056
118	SDM5 -07 -T-1	Yacht	07	25Oct88	1640	Mytilus edulis	0.058	0.410	1.100
119	SDM5 -07 -T-2	Yacht	07	25Oct88	1640	Mytilus edulis	0.052	0.410	1.300
120	SDM5 -07 -T-3	Yacht	07	25Oct88	1640	Mytilus edulis	0.064	0.430	1.200
121	SDM6 -07 -T-1	Yacht	07	19Jan89	1600	Mytilus edulis	0.056	0.230	0.720
122	SDM6 -07 -T-2	Yacht	07	19Jan89	1600	Mytilus edulis	0.069	0.250	0.740
123	SDM6 -07 -T-3	Yacht	07	19Jan89	1600	Mytilus edulis	0.170	0.320	1.200
124	SDM6 -02B-T-1	North	02B	19Jan89	1545	Mytilus edulis	0.004	0.011	0.034
125	SDM6 -02B-T-2	North	02B	19Jan89	1545	Mytilus edulis	0.008	0.008	0.029
126	SDM6 -02B-T-3	North	02B	19Jan89	1545	Mytilus edulis	0.004	0.011	0.033
127	SDM6 -06A-T-1	North	06A	19Jan89	1530	Mytilus edulis	0.120	0.029	0.110
128	SDM6 -06A-T-2	North	06A	19Jan89	1530	Mytilus edulis	0.120	0.051	0.110
129	SDM6 -06A-T-3	North	06A	19Jan89	1530	Mytilus edulis	0.120	0.027	0.110
130	SDM6 -10A-T-1	Yacht	10A	19Jan89	1520	Mytilus edulis	0.047	0.089	0.320
131	SDM6 -10A-T-2	Yacht	10A	19Jan89	1520	Mytilus edulis	0.031	0.082	0.250
132	SDM6 -10A-T-3	Yacht	10A	19Jan89	1520	Mytilus edulis	0.039	0.076	0.210
133	SDM6 -15 -T-1	Navy	15	19Jan89	1510	Mytilus edulis	0.033	0.120	0.260
134	SDM6 -15 -T-2	Navy	15	19Jan89	1510	Mytilus edulis	0.027	0.092	0.200
135	SDM6 -15 -T-3	Navy	15	19Jan89	1510	Mytilus edulis	0.031	0.110	0.260
136	SDM6 -16 -T-1	Yacht	16	19Jan89	1500	Mytilus edulis	0.170	0.870	0.800
137	SDM6 -16 -T-2	Yacht	16	19Jan89	1500	Mytilus edulis	0.170	0.850	0.760
138	SDM6 -16 -T-3	Yacht	16	19Jan89	1500	Mytilus edulis	0.160	0.900	0.960
139	SDM6 -18 -T-1	North	18	19Jan89	1450	Mytilus edulis	0.012	0.097	0.330
140	SDM6 -18 -T-2	North	18	19Jan89	1450	Mytilus edulis	0.010	0.093	0.310
141	SDM6 -18 -T-3	North	18	19Jan89	1450	Mytilus edulis	0.010	0.091	0.310
142	SDM6 -26C-T-1	South	26C	19Jan89	1415	Mytilus edulis	0.021	0.081	0.160

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Obs	sample	region	station	date	time	species	mbtcl_t	dbtcl_t	tbtcl_t
143	SDM6 -26C-T-2	South	26C	19Jan89	1415	Mytilus edulis	0.017	0.075	0.160
144	SDM6 -26C-T-3	South	26C	19Jan89	1415	Mytilus edulis	0.019	0.079	0.160
145	SDM6 -22 -T-1	Navy	22	19Jan89	1430	Mytilus edulis	0.046	0.110	0.290
146	SDM6 -22 -T-2	Navy	22	19Jan89	1430	Mytilus edulis	0.047	0.150	0.400
147	SDM6 -22 -T-3	Navy	22	19Jan89	1430	Mytilus edulis	0.051	0.130	0.470
148	SDM6 -44B-T-1	South	44B	19Jan89	1400	M.edulis/californianu	0.047	0.060	0.100
149	SDM6 -44B-T-2	South	44B	19Jan89	1400	M.edulis/californianu	0.040	0.052	0.088
150	SDM6 -44B-T-3	South	44B	19Jan89	1400	M.edulis/californianu	0.042	0.056	0.096
151	SDM6 -53 -T-1	Yacht	53	19Jan89	1250	Mytilus edulis	0.310	0.500	0.640
152	SDM6 -53 -T-2	Yacht	53	19Jan89	1250	Mytilus edulis	0.290	0.470	0.470
153	SDM6 -53 -T-3	Yacht	53	19Jan89	1250	Mytilus edulis	0.320	0.500	0.540
154	SDM6 -38A-T-1	Navy	38A	19Jan89	1440	Mytilus edulis	0.041	0.120	0.200
155	SDM6 -38A-T-2	Navy	38A	18Jan98	1440	Mytilus edulis	0.042	0.110	0.180
156	SDM6 -38A-T-3	Navy	38A	19Jan89	1440	Mytilus edulis	0.041	0.110	0.190
157	SDM7 -02B-T-1	North	02B	20Apr89	1428	Mytilus edulis	0.015	0.013	0.058
158	SDM7 -02B-T-2	North	02B	20Apr89	1428	Mytilus edulis	0.015	0.013	0.058
159	SDM7 -02B-T-3	North	02B	20Apr89	1428	Mytilus edulis	0.015	0.014	0.054
160	SDM7 -06A-T-1	North	06A	20Apr89	1437	Mytilus edulis	0.042	0.058	0.110
161	SDM7 -06A-T-2	North	06A	20Apr89	1437	Mytilus edulis	0.038	0.057	0.110
162	SDM7 -06A-T-3	North	06A	20Apr89	1437	Mytilus edulis	0.036	0.056	0.110
163	SDM7 -10A-T-1	Yacht	10A	20Apr89	1444	Mytilus edulis	0.040	0.120	0.300
164	SDM7 -10A-T-2	Yacht	10A	20Apr89	1444	Mytilus edulis	0.042	0.120	0.290
165	SDM7 -10A-T-3	Yacht	10A	20Apr89	1444	Mytilus edulis	0.039	0.110	0.270
166	SDM7 -15A-T-1	Navy	15A	20Apr89	1501	Mytilus edulis	0.041	0.110	0.210
167	SDM7 -15A-T-2	Navy	15A	20Apr89	1501	Mytilus edulis	0.042	0.110	0.210
168	SDM7 -15A-T-3	Navy	15A	20Apr89	1501	Mytilus edulis	0.044	0.110	0.210
169	SDM7 -18 -T-1	North	18	20Apr89	1511	Mytilus edulis	0.075	0.130	0.210
170	SDM7 -18 -T-2	North	18	20Apr89	1511	Mytilus edulis	0.070	0.130	0.220
171	SDM7 -18 -T-3	North	18	20Apr89	1511	Mytilus edulis	0.073	0.130	0.220
172	SDM7 -16 -T-1	Yacht	16	20Apr89	1522	Mytilus edulis	0.420	0.910	0.840
173	SDM7 -16 -T-2	Yacht	16	20Apr89	1522	Mytilus edulis	0.410	0.900	0.860
174	SDM7 -16 -T-3	Yacht	16	20Apr89	1522	Mytilus edulis	0.370	0.820	0.750
175	SDM7 -22 -T-1	Navy	22	28Apr89	1005	Mytilus edulis	0.078	0.140	0.170
176	SDM7 -22 -T-2	Navy	22	28Apr89	1005	Mytilus edulis	0.069	0.130	0.170
177	SDM7 -22 -T-3	Navy	22	28Apr89	1005	Mytilus edulis	0.076	0.130	0.170
178	SDM7 -26C-T-1	South	26C	28Apr89	1030	Mytilus edulis	0.042	0.074	0.110
179	SDM7 -26C-T-2	South	26C	28Apr89	1030	Mytilus edulis	0.041	0.079	0.110
180	SDM7 -26C-T-3	South	26C	28Apr89	1030	Mytilus edulis	0.044	0.080	0.110
181	SDM7 -44B-T-1	South	44B	28Apr89	1050	Mytilus edulis	0.056	0.051	0.050
182	SDM7 -44B-T-2	South	44B	28Apr89	1050	Mytilus edulis	0.050	0.050	0.049
183	SDM7 -44B-T-3	South	44B	28Apr89	1050	Mytilus edulis	0.058	0.052	0.053
184	SDM7 -53 -T-1	Yacht	53	28Apr89	1107	Mytilus edulis	0.190	0.320	0.340
185	SDM7 -53 -T-2	Yacht	53	28Apr89	1107	Mytilus edulis	0.190	0.310	0.320
186	SDM7 -53 -T-3	Yacht	53	28Apr89	1107	Mytilus edulis	0.190	0.310	0.290
187	SDM8 -02B-T-1	North	02B	4Aug89	0743	Mytilus edulis	0.018	0.024	0.054
188	SDM8 -02B-T-2	North	02B	4Aug89	0743	Mytilus edulis	0.019	0.024	0.052
189	SDM8 -02B-T-3	North	02B	4Aug89	0743	Mytilus edulis	0.018	0.025	0.052
190	SDM8 -06A-T-1	North	06A	4Aug89	0753	Mytilus edulis	0.021	0.056	0.100
191	SDM8 -06A-T-2	North	06A	4Aug89	0753	Mytilus edulis	0.023	0.064	0.120
192	SDM8 -06A-T-3	North	06A	4Aug89	0753	Mytilus edulis	0.025	0.060	0.110
193	SDM8 -10A-T-1	Yacht	10A	4Aug89	0750	Mytilus edulis	0.029	0.120	0.220
194	SDM8 -10A-T-2	Yacht	10A	4Aug89	0750	Mytilus edulis	0.032	0.110	0.200
195	SDM8 -10A-T-3	Yacht	10A	4Aug89	0750	Mytilus edulis	0.031	0.120	0.220
196	SDM8 -15A-T-1	Navy	15A	4Aug89	0805	Mytilus edulis	0.029	0.076	0.110
197	SDM8 -15A-T-2	Navy	15A	4Aug89	0805	Mytilus edulis	0.013	0.081	0.110
198	SDM8 -15A-T-3	Navy	15A	4Aug89	0805	Mytilus edulis	0.019	0.079	0.098
199	SDM8 -22 -T-1	Navy	22	4Aug89	0820	Mytilus edulis	0.059	0.170	1.800
200	SDM8 -22 -T-2	Navy	22	4Aug89	0820	Mytilus edulis	0.062	0.170	1.700
201	SDM8 -22 -T-3	Navy	22	4Aug89	0820	Mytilus edulis	0.062	0.170	1.600
202	SDM8 -26C-T-1	South	26C	4Aug89	0829	Mytilus edulis	0.060	0.093	0.059
203	SDM8 -26C-T-2	South	26C	4Aug89	0829	Mytilus edulis	0.060	0.089	0.061
204	SDM8 -26C-T-3	South	26C	4Aug89	0829	Mytilus edulis	0.059	0.088	0.056
205	SDM8 -44B-T-1	South	44B	4Aug89	0841	Mytilus edulis	0.068	0.085	0.059
206	SDM8 -44B-T-2	South	44B	4Aug89	0841	Mytilus edulis	0.069	0.075	0.056
207	SDM8 -44B-T-3	South	44B	4Aug89	0841	Mytilus edulis	0.068	0.080	0.061
208	SDM8 -53 -T-1	Yacht	53	4Aug89	0858	Mytilus edulis	0.160	0.370	0.290
209	SDM8 -53 -T-2	Yacht	53	4Aug89	0858	Mytilus edulis	0.160	0.360	0.280
210	SDM8 -53 -T-3	Yacht	53	4Aug89	0858	Mytilus edulis	0.160	0.370	0.290
211	SDM8 -16 -T-1	Yacht	16	4Aug89	1005	Mytilus edulis	0.360	0.810	0.400
212	SDM8 -16 -T-2	Yacht	16	4Aug89	1005	Mytilus edulis	0.330	0.740	0.350
213	SDM8 -16 -T-3	Yacht	16	4Aug89	1005	Mytilus edulis	0.360	0.750	0.380

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Obs	sample	region	station	date	time	species	mbtcl_t	dbtcl_t	tbtcl_t
214	SDM8 -18 -T-1	North	18	4Aug89	0815	Mytilus edulis	0.047	0.130	0.170
215	SDM8 -18 -T-2	North	18	4Aug89	0815	Mytilus edulis	0.055	0.140	0.180
216	SDM8 -18 -T-3	North	18	4Aug89	0815	Mytilus edulis	0.052	0.140	0.180

Obs	sample	region	station	date	time	depth	mbtcl_s	dbtcl_s	tbtcl_s
1	SDM4 -02C-S-1	North	02C	23Feb88	935	11.0	0.000	0.000	0.001
2	SDM4 -02C-S-2	North	02C	23Feb88	942	11.0	0.000	0.000	0.004
3	SDM4 -02C-S-3	North	02C	23Feb88	950	11.0	0.000	0.000	0.000
4	SDM4 -04 -S-1	Navy	04	23Feb88	956	11.0	0.000	0.064	0.060
5	SDM4 -04 -S-2	Navy	04	23Feb88	958	11.0	0.022	0.082	0.074
6	SDM4 -04 -S-3	Navy	04	23Feb88	959	11.0	0.000	0.036	0.036
7	SDM4 -06A-S-1	North	06A	23Feb88	1053	13.0	0.014	0.044	0.032
8	SDM4 -06A-S-2	North	06A	23Feb88	1057	13.0	0.000	0.000	0.040
9	SDM4 -06A-S-3	North	06A	23Feb88	1100	13.0	0.000	0.000	0.040
10	SDM4 -07 -S-1	Yacht	07	23Feb88	1009	4.0	0.032	0.036	0.086
11	SDM4 -07 -S-2	Yacht	07	23Feb88	1011	4.0	0.036	0.030	0.086
12	SDM4 -07 -S-3	Yacht	07	23Feb88	1012	4.0	0.028	0.060	0.068
13	SDM4 -08 -S-1	Yacht	08	23Feb88	1021	5.5	0.034	0.130	0.062
14	SDM4 -08C-S-1	Yacht	08C	23Feb88	1015	6.0	0.038	0.160	0.130
15	SDM4 -10 -S-1	Yacht	10	23Feb88	1103	5.0	0.068	0.160	0.250
16	SDM4 -10 -S-2	Yacht	10	23Feb88	1105	5.0	0.068	0.210	0.190
17	SDM4 -10 -S-3	Yacht	10	23Feb88	1106	5.0	0.088	0.170	0.200
18	SDM4 -10C-S-1	Yacht	10C	23Feb88	1139	6.0	0.026	0.110	0.094
19	SDM4 -10D-S-1	Yacht	10D	23Feb88	1135	4.0	0.034	0.150	0.110
20	SDM4 -10E-S-1	Yacht	10E	23Feb88	1143	4.0	0.030	0.140	0.110
21	SDM4 -11 -S-1	Yacht	11	23Feb88	1112	7.0	0.062	0.650	0.500
22	SDM4 -11A-S-1	Yacht	11A	23Feb88	1107	7.0	0.046	0.320	0.280
23	SDM4 -11B-S-1	Yacht	11B	23Feb88	1117	6.5	0.160	1.500	1.300
24	SDM4 -13 -S-1	North	13	23Feb88	1425	12.0	0.000	0.040	0.060
25	SDM4 -13 -S-2	North	13	23Feb88	1427	12.0	0.000	0.062	0.076
26	SDM4 -13 -S-3	North	13	23Feb88	1429	12.0	0.000	0.058	0.092
27	SDM4 -13A-S-1	North	13A	.	.	.	0.018	0.096	0.072
28	SDM4 -15A-S-1	Navy	15A	23Feb88	1415	7.0	0.028	0.100	0.092
29	SDM4 -15A-S-2	Navy	15A	23Feb88	1417	7.0	0.024	0.110	0.090
30	SDM4 -16 -S-1	Yacht	16	23Feb88	1348	3.5	0.024	0.100	0.110
31	SDM4 -16A-S-1	Yacht	16A	23Feb88	1356	3.0	0.040	0.120	0.140
32	SDM4 -16B-S-1	Yacht	16B	23Feb88	1358	4.0	0.018	0.092	0.084
33	SDM4 -18 -S-1	North	18	23Feb88	1337	9.0	0.000	0.064	0.084
34	SDM4 -18 -S-2	North	18	23Feb88	1339	9.0	0.018	0.084	0.072
35	SDM4 -18 -S-3	North	18	23Feb88	1341	9.0	0.000	0.074	0.078
36	SDM4 -19 -S-1	Yacht	19	23Feb88	1328	7.0	0.000	0.046	0.064
37	SDM4 -19 -S-2	Yacht	19	23Feb88	1330	7.0	0.000	0.034	0.064
38	SDM4 -19 -S-3	Yacht	19	23Feb88	1332	7.0	0.000	0.028	0.036
39	SDM4 -21 -S-1	Navy	21	23Feb88	1312	10.0	0.048	0.230	0.180
40	SDM4 -21 -S-2	Navy	21	23Feb88	1314	10.0	0.040	0.190	0.160
41	SDM4 -21 -S-3	Navy	21	23Feb88	1315	10.0	0.054	0.290	0.220
42	SDM4 -22 -S-1	Navy	22	23Feb88	1320	8.0	0.000	0.032	0.048
43	SDM4 -22 -S-2	Navy	22	23Feb88	1322	8.0	0.000	0.048	0.046
44	SDM4 -22 -S-3	Navy	22	23Feb88	1324	8.0	0.016	0.082	0.074
45	SDM4 -26A-S-1	Navy	26A	22Feb88	1440	4.5	0.014	0.032	0.020
46	SDM4 -26A-S-2	Navy	26A	22Feb88	1442	4.5	0.000	0.028	0.026
47	SDM4 -26A-S-3	Navy	26A	22Feb88	1444	4.5	0.000	0.028	0.040
48	SDM4 -26B-S-1	Yacht	26B	22Feb88	1447	4.5	0.024	0.120	0.032
49	SDM4 -26C-S-1	South	26C	22Feb88	1420	4.0	0.000	0.000	0.030
50	SDM4 -26C-S-1	South	26C	22Feb88	1422	4.0	0.000	0.012	0.040
51	SDM4 -26C-S-1	South	26C	22Feb88	1424	4.0	0.000	0.014	0.024
52	SDM4 -26D-S-1	Yacht	26D	22Feb88	1445	4.5	0.026	0.100	0.056
53	SDM4 -26E-S-1	Yacht	26E	22Feb88	1450	4.5	0.000	0.140	0.080
54	SDM4 -29 -S-1	Navy	29	22Feb88	1328	12.0	0.056	0.180	0.300
55	SDM4 -29 -S-2	Navy	29	22Feb88	1330	12.0	0.046	0.420	0.400
56	SDM4 -29 -S-3	Navy	29	22Feb88	1332	12.0	0.044	0.430	0.350
57	SDM4 -33 -S-1	North	33	22Feb88	1345	12.0	0.000	0.056	0.036
58	SDM4 -33 -S-2	North	33	22Feb88	1347	12.0	0.010	0.054	0.026
59	SDM4 -33 -S-3	North	33	22Feb88	1349	12.0	0.000	0.066	0.052
60	SDM4 -38A-S-1	Navy	38A	22Feb88	1310	12.0	0.034	0.230	0.170
61	SDM4 -38A-S-2	Navy	38A	22Feb88	1315	12.0	0.032	0.220	0.200
62	SDM4 -38A-S-3	Navy	38A	22Feb88	1320	12.0	0.028	0.230	0.180
63	SDM4 -42 -S-1	South	42	22Feb88	1250	11.0	0.000	0.100	0.040
64	SDM4 -42 -S-3	South	42	22Feb88	1300	11.0	0.022	0.100	0.032
65	SDM4 -44A-S-1	South	44A	22Feb88	1100	4.5	0.000	0.000	0.014
66	SDM4 -44A-S-2	South	44A	22Feb88	1108	4.5	0.000	0.000	0.000
67	SDM4 -44A-S-3	South	44A	22Feb88	1115	4.5	0.000	0.000	0.000
68	SDM5 -02B-S-1	North	02B	27Oct88	1010	.	0.000	0.000	0.012
69	SDM5 -02B-S-2	North	02B	27Oct88	1013	.	0.000	0.000	0.000
70	SDM5 -02B-S-3	North	02B	27Oct88	1020	.	0.000	0.000	0.024
71	SDM5 -06A-S-1	North	06A	27Oct88	1033	.	0.000	0.000	0.000

Obs	sample	region	station	date	time	depth	mbtcl_s	dbtcl_s	tbtcl_s
72	SDM5 -06A-S-2	North	06A	27Oct88	1027	.	0.000	0.062	0.048
73	SDM5 -06A-S-3	North	06A	27Oct88	1030	.	0.000	0.000	0.000
74	SDM5 -13 -S-1	North	13	27Oct88	1152	.	0.000	0.068	0.036
75	SDM5 -13 -S-2	North	13	27Oct88	1144	.	0.000	0.066	0.044
76	SDM5 -13 -S-3	North	13	27Oct88	1155	.	0.000	0.092	0.048
77	SDM5 -18 -S-1	North	18	27Oct88	1210	.	0.000	0.072	0.052
78	SDM5 -18 -S-2	North	18	27Oct88	1204	.	0.000	0.038	0.036
79	SDM5 -18 -S-3	North	18	27Oct88	1213	.	0.000	0.088	0.070
80	SDM5 -22 -S-1	Navy	22	27Oct88	1224	.	0.000	0.320	0.250
81	SDM5 -22 -S-2	Navy	22	27Oct88	1221	.	0.000	0.220	0.260
82	SDM5 -22 -S-3	Navy	22	27Oct88	1226	.	0.000	0.170	0.200
83	SDM5 -38A-S-1	Navy	38A	27Oct88	1337	.	0.000	0.000	0.008
84	SDM5 -38A-S-2	Navy	38A	27Oct88	1233	.	0.000	0.024	0.038
85	SDM5 -38A-S-3	Navy	38A	27Oct88	1243	.	0.000	0.150	0.064
86	SDM5 -35 -S-1	South	35	27Oct88	1414	.	0.000	0.000	0.000
87	SDM5 -35 -S-2	South	35	27Oct88	1412	.	0.000	0.000	0.000
88	SDM5 -35 -S-3	South	35	27Oct88	1417	.	0.000	0.000	0.000
89	SDM5 -46 -S-1	South	46	27Oct88	1258	.	0.000	0.000	0.000
90	SDM5 -46 -S-2	South	46	27Oct88	1256	.	0.000	0.000	0.000
91	SDM5 -46 -S-3	South	46	27Oct88	1254	.	0.000	0.044	0.020
92	SDM5 -48 -S-1	South	48	27Oct88	1337	.	0.000	0.000	0.000
93	SDM5 -48 -S-2	South	48	27Oct88	1335	.	0.000	0.000	0.000
94	SDM5 -48 -S-3	South	48	27Oct88	1340	.	0.000	0.000	0.000
95	SDM5 -08 -S-1	Yacht	08	27Oct88	1453	.	0.082	0.130	0.066
96	SDM5 -08C-S-1	Yacht	08C	27Oct88	1445	.	0.000	0.130	0.074
97	SDM5 -08D-S-1	Yacht	08D	27Oct88	1458	.	0.210	0.300	0.150
98	SDM5 -11 -S-1	Yacht	11	27Oct88	1130	.	0.170	0.920	2.200
99	SDM5 -11B-S-1	Yacht	11B	27Oct88	1135	.	0.160	0.930	0.790
100	SDM5 -11A-S-1	Yacht	11A	27Oct88	1125	.	0.000	0.140	0.180
101	SDM5 -10D-S-1	Yacht	10D	27Oct88	1055	.	0.000	0.062	0.060
102	SDM5 -10C-S-1	Yacht	10C	27Oct88	1101	.	0.030	0.064	0.046
103	SDM5 -10E-S-1	Yacht	10E	27Oct88	1106	.	0.048	0.120	0.062
104	SDM5 -49B-S-1	Yacht	49B	27Oct88	1315	.	0.000	0.000	0.000
105	SDM5 -49C-S-1	Yacht	49C	27Oct88	1317	.	0.000	0.110	0.058
106	SDM5 -53A-S-1	Yacht	53A	27Oct88	1350	.	0.000	0.098	0.000
107	SDM5 -53B-S-1	Yacht	53B	27Oct88	1355	.	0.000	0.000	0.000
108	SDM5 -53 -S-1	Yacht	53	27Oct88	1400	.	0.090	0.170	0.044
109	SDM6 -02B-S-1	North	02B	31Jan89	1035	.	0.060	0.005	0.066
110	SDM6 -02B-S-2	North	02B	31Jan89	1040	.	0.064	0.009	0.140
111	SDM6 -02B-S-3	North	02B	31Jan89	1030	.	0.044	0.009	0.004
112	SDM6 -06A-S-1	North	06A	31Jan89	1055	.	0.052	0.027	0.002
113	SDM6 -06A-S-2	North	06A	31Jan89	1058	.	0.019	0.035	0.021
114	SDM6 -06A-S-3	North	06A	31Jan89	1053	.	0.019	0.035	0.027
115	SDM6 -08 -S-1	Yacht	08	31Jan89	.	.	0.074	0.087	0.085
116	SDM6 -08C-S-1	Yacht	08C	31Jan89	.	.	0.100	0.150	0.150
117	SDM6 -08D-S-1	Yacht	08D	31Jan89	.	.	0.120	0.130	0.110
118	SDM6 -11 -S-1	Yacht	11	31Jan89	.	.	0.180	0.650	0.480
119	SDM6 -11A-S-1	Yacht	11A	31Jan89	.	.	0.100	0.290	0.220
120	SDM6 -11B-S-2	Yacht	11B	31Jan89	.	.	0.310	0.970	0.900
121	SDM6 -13 -S-1	North	13	31Jan89	1130	.	0.021	0.045	0.033
122	SDM6 -13 -S-2	North	13	31Jan89	1133	.	0.018	0.052	0.048
123	SDM6 -13 -S-3	North	13	31Jan89	1125	.	0.019	0.046	0.035
124	SDM6 -18 -S-1	North	18	31Jan89	1151	.	0.033	0.056	0.046
125	SDM6 -18 -S-2	North	18	31Jan89	1158	.	0.049	0.068	0.026
126	SDM6 -18 -S-3	North	18	31Jan89	1147	.	0.043	0.070	0.120
127	SDM6 -22 -S-1	Navy	22	31Jan89	1205	.	0.069	0.240	0.340
128	SDM6 -22 -S-2	Navy	22	31Jan89	1220	.	0.077	0.180	0.250
129	SDM6 -22 -S-3	Navy	22	31Jan89	1210	.	0.055	0.170	0.250
130	SDM6 -38A-S-1	Navy	38A	31Jan89	1230	.	0.034	0.150	0.042
131	SDM6 -38A-S-2	Navy	38A	31Jan89	1238	.	0.044	0.160	0.034
132	SDM6 -38A-S-3	Navy	38A	31Jan89	1225	.	0.028	0.096	0.044
133	SDM6 -46 -S-1	South	46	31Jan89	1303	.	0.015	0.014	0.003
134	SDM6 -46 -S-2	South	46	31Jan89	1305	.	0.040	0.033	0.012
135	SDM6 -46 -S-3	South	46	31Jan89	1257	.	0.043	0.031	0.011
136	SDM6 -49B-S-1	Yacht	49B	31Jan89	1330	.	0.068	0.064	0.032
137	SDM6 -49C-S-1	Yacht	49C	31Jan89	1325	.	0.042	0.046	0.030
138	SDM6 -49D-S-1	Yacht	49D	31Jan89	1317	.	0.036	0.036	0.026
139	SDM6 -48 -S-1	South	48	31Jan89	1343	.	0.020	0.017	0.008
140	SDM6 -48 -S-2	South	48	31Jan89	1346	.	0.026	0.017	0.004
141	SDM6 -48 -S-3	South	48	31Jan89	1340	.	0.022	0.018	0.011
142	SDM6 -53 -S-1	Yacht	53	31Jan89	1400	.	0.072	0.041	0.008

Obs	sample	region	station	date	time	depth	mbtcl_s	dbtcl_s	tbtcl_s
143	SDM6 -53A-S-1	Yacht	53A	31Jan89	1317	.	0.090	0.050	0.015
144	SDM6 -53B-S-1	Yacht	53B	31Jan89	1317	.	0.150	0.084	0.035
145	SDM6 -35 -S-1	South	35	31Jan89	1440	.	0.027	0.031	0.025
146	SDM6 -35 -S-2	South	35	31Jan89	1445	.	0.022	0.014	0.011
147	SDM6 -35 -S-3	South	35	31Jan89	1432	.	0.022	0.029	0.022
148	SDM6 -10E-S-1	Yacht	10E	31Jan89	1518	.	0.150	0.340	0.280
149	SDM6 -10C-S-1	Yacht	10C	31Jan89	1530	.	0.066	0.120	0.110
150	SDM6 -10D-S-1	Yacht	10D	31Jan89	1535	.	0.068	0.100	0.100
151	SDM7 -22 -S-1	Navy	22	28Apr89	957	.	0.081	0.220	0.200
152	SDM7 -22 -S-2	Navy	22	28Apr89	1003	.	0.110	0.320	0.170
153	SDM7 -22 -S-3	Navy	22	28Apr89	1007	.	0.079	0.190	0.120
154	SDM7 -53 -S-1	Yacht	53	28Apr89	1055	.	0.082	0.075	0.052
155	SDM7 -53A-S-1	Yacht	53A	28Apr89	1100	.	0.035	0.068	0.042
156	SDM7 -53B-S-1	Yacht	53B	28Apr89	1103	.	0.120	0.084	0.041
157	SDM7 -48 -S-1	South	48	28Apr89	1130	.	0.033	0.018	0.018
158	SDM7 -48 -S-2	South	48	28Apr89	1135	.	0.034	0.019	0.010
159	SDM7 -48 -S-3	South	48	28Apr89	1138	.	0.033	0.018	0.019
160	SDM7 -49B-S-1	Yacht	49B	28Apr89	1145	.	0.024	0.041	0.024
161	SDM7 -49C-S-1	Yacht	49C	28Apr89	1149	.	0.024	0.020	0.023
162	SDM7 -49D-S-1	Yacht	49D	28Apr89	1152	.	0.057	0.077	0.044
163	SDM7 -46 -S-1	South	46	28Apr89	1205	.	0.034	0.046	0.024
164	SDM7 -46 -S-2	South	46	28Apr89	1208	.	0.034	0.043	0.024
165	SDM7 -46 -S-3	South	46	28Apr89	1211	.	0.034	0.044	0.023
166	SDM7 -38A-S-1	Navy	38A	28Apr89	1234	.	0.057	0.140	0.042
167	SDM7 -38A-S-2	Navy	38A	28Apr89	1236	.	0.072	0.160	0.061
168	SDM7 -38A-S-3	Navy	38A	28Apr89	1238	.	0.071	0.180	0.066
169	SDM7 -35 -S-1	South	35	28Apr89	1245	.	0.032	0.047	0.025
170	SDM7 -35 -S-2	South	35	28Apr89	1250	.	0.032	0.051	0.025
171	SDM7 -35 -S-3	South	35	28Apr89	1254	.	0.073	0.072	0.026
172	SDM7 -18 -S-1	North	18	28Apr89	1301	.	0.061	0.077	0.050
173	SDM7 -18 -S-2	North	18	28Apr89	1305	.	0.130	0.170	0.078
174	SDM7 -18 -S-3	North	18	28Apr89	1311	.	0.092	0.120	0.075
175	SDM7 -13 -S-1	North	13	28Apr89	1323	.	0.031	0.075	0.047
176	SDM7 -13 -S-2	North	13	28Apr89	1334	.	0.032	0.070	0.048
177	SDM7 -13 -S-3	North	13	28Apr89	1337	.	0.052	0.099	0.059
178	SDM7 -10D-S-1	Yacht	10D	28Apr89	1355	.	0.067	0.087	0.063
179	SDM7 -10C-S-1	Yacht	10C	28Apr89	1400	.	0.086	0.140	0.089
180	SDM7 -10E-S-1	Yacht	10E	28Apr89	1405	.	0.130	0.220	0.100
181	SDM7 -11 -S-1	Yacht	11	28Apr89	1414	.	0.260	0.710	0.410
182	SDM7 -11A-S-1	Yacht	11A	28Apr89	1421	.	0.110	0.260	0.140
183	SDM7 -11B-S-1	Yacht	11B	28Apr89	1425	.	0.380	1.100	0.730
184	SDM7 -06A-S-1	North	06A	28Apr89	1440	.	0.023	0.046	0.039
185	SDM7 -06A-S-2	North	06A	28Apr89	1445	.	0.026	0.046	0.044
186	SDM7 -06A-S-3	North	06A	28Apr89	1450	.	0.022	0.018	0.028
187	SDM7 -08 -S-1	Yacht	08	28Apr89	1505	.	0.130	0.180	0.095
188	SDM7 -08D-S-1	Yacht	08D	28Apr89	1500	.	0.120	0.120	0.082
189	SDM7 -08C-S-1	Yacht	08C	28Apr89	1510	.	0.120	0.170	0.093
190	SDM7 -02B-S-1	North	02B	28Apr89	1524	.	0.044	0.027	0.029
191	SDM7 -02B-S-2	North	02B	28Apr89	1540	.	0.045	0.028	0.052
192	SDM7 -02B-S-3	North	02B	28Apr89	1553	.	0.046	0.029	0.019
193	SDM8 -22 -S-1	Navy	22	18Aug89	1004	.	0.033	0.030	0.025
194	SDM8 -22 -S-2	Navy	22	18Aug89	1015	.	0.170	0.270	0.140
195	SDM8 -22 -S-3	Navy	22	18Aug89	1027	.	0.130	0.400	0.220
196	SDM8 -38A-S-1	Navy	38A	18Aug89	1033	.	0.075	0.140	0.041
197	SDM8 -38A-S-2	Navy	38A	18Aug89	1038	.	0.073	0.140	0.047
198	SDM8 -38A-S-3	Navy	38A	18Aug89	1045	.	0.066	0.140	0.042
199	SDM8 -46 -S-1	South	46	18Aug89	1055	.	0.036	0.028	0.019
200	SDM8 -46 -S-2	South	46	18Aug89	1100	.	0.055	0.031	0.022
201	SDM8 -46 -S-3	South	46	18Aug89	1105	.	0.059	0.043	0.024
202	SDM8 -49B-S-1	Yacht	49B	18Aug89	1110	.	0.034	0.032	0.020
203	SDM8 -49C-S-1	Yacht	49C	18Aug89	1114	.	0.034	0.014	0.030
204	SDM8 -49D-S-1	Yacht	49D	18Aug89	1116	.	0.060	0.048	0.026
205	SDM8 -48 -S-1	South	48	18Aug89	1123	.	0.034	0.014	0.018
206	SDM8 -48 -S-2	South	48	18Aug89	1125	.	0.056	0.025	0.028
207	SDM8 -48 -S-3	South	48	18Aug89	1128	.	0.035	0.014	0.013
208	SDM8 -53 -S-1	Yacht	53	18Aug89	1134	.	0.100	0.065	0.019
209	SDM8 -53A-S-1	Yacht	53A	18Aug89	1139	.	0.110	0.065	0.049
210	SDM8 -53B-S-1	Yacht	53B	18Aug89	1142	.	0.084	0.044	0.025
211	SDM8 -35 -S-1	South	35	18Aug89	1210	.	0.052	0.029	0.027
212	SDM8 -35 -S-2	South	35	18Aug89	1218	.	0.078	0.058	0.032
213	SDM8 -35 -S-3	South	35	18Aug89	1222	.	0.059	0.044	0.020

Obs	sample	region	station	date	time	depth	mbtcl_s	dbtcl_s	tbtcl_s
214	SDM8 -18 -S-1	North	18	18Aug89	1230	.	0.110	0.092	0.045
215	SDM8 -18 -S-2	North	18	18Aug89	1235	.	0.073	0.058	0.027
216	SDM8 -18 -S-3	North	18	18Aug89	1239	.	0.120	0.100	0.013
217	SDM8 -13 -S-1	North	13	18Aug89	1250	.	0.039	0.044	0 028
218	SDM8 -13 -S-2	North	13	18Aug89	1255	.	0 037	0.068	0.025
219	SDM8 -13 -S-3	North	13	18Aug89	1300	.	0.037	0.062	0.035
220	SDM8 -10E-S-1	Yacht	10E	18Aug89	1319	.	0.140	0.180	0.084
221	SDM8 -10C-S-1	Yacht	10C	18Aug89	1321	.	0.095	0.098	0.084
222	SDM8 -10D-S-1	Yacht	10D	18Aug89	1323	.	0.096	0.130	0.073
223	SDM8 -11B-S-1	Yacht	11B	18Aug89	1340	.	0.350	1.100	0.460
224	SDM8 -11 -S-1	Yacht	11	18Aug89	1344	.	0.180	0.470	0.130
225	SDM8 -11A-S-1	Yacht	11A	18Aug89	1346	.	0.130	0.280	0.082
226	SDM8 -06A-S-1	North	06A	18Aug89	1358	.	0.057	0.040	0.021
227	SDM8 -06A-S-2	North	06A	18Aug89	1400	.	0.038	0.030	0.021
228	SDM8 -06A-S-3	North	06A	18Aug89	1402	.	0.040	0.032	0.021
229	SDM8 -02B-S-1	North	02B	18Aug89	1423	.	0.043	0.019	0.040
230	SDM8 -02B-S-2	North	02B	18Aug89	1430	.	0.037	0.016	0.029
231	SDM8 -02B-S-3	North	02B	18Aug89	1436	.	0.040	0.018	0.032
232	SDM8 -08D-S-1	Yacht	08D	18Aug89	1454	.	0.180	0.170	0.090
233	SDM8 -08 -S-1	Yacht	08	18Aug89	1458	.	0.130	0.140	0.074
234	SDM8 -08C-S-1	Yacht	08C	18Aug89	1503	.	0.100	0.130	0.059

Pearl Harbor Organotin Monitoring
Water

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
1	PHM -01 -SW-1	Entrance Channel	01	S	9Apr86	133500	1	INCMG	.	.	.
2	PHM -01 -SW-2	Entrance Channel	01	S	9Apr86	133600	1	INCMG	.	.	.
3	PHM -01 -SW-3	Entrance Channel	01	S	9Apr86	133700	1	INCMG	10.0	2.0	0.0
4	PHM -01 -DW-1	Entrance Channel	01	D	9Apr86	133000	9	INCMG	0.0	0.0	0.0
5	PHM -01 -DW-2	Entrance Channel	01	D	9Apr86	133100	9	INCMG	0.0	0.0	0.0
6	PHM -01 -DW-3	Entrance Channel	01	D	9Apr86	133200	9	INCMG	0.0	0.0	0.0
7	PHM -05 -SW-1	Entrance Channel	05	S	9Apr86	120300	1	INCMG	0.0	0.0	0.0
8	PHM -05 -SW-2	Entrance Channel	05	S	9Apr86	120400	1	INCMG	.	.	.
9	PHM -05 -SW-3	Entrance Channel	05	S	9Apr86	120500	1	INCMG	0.0	0.0	0.0
10	PHM -05 -DW-1	Entrance Channel	05	D	9Apr86	115600	14	INCMG	0.0	0.0	0.0
11	PHM -05 -DW-2	Entrance Channel	05	D	9Apr86	115700	14	INCMG	0.0	0.0	0.0
12	PHM -05 -DW-3	Entrance Channel	05	D	9Apr86	115800	14	INCMG	0.0	0.0	0.0
13	PHM -05A-SW-1	Entrance Channel	05A	S	9Apr86		.		0.0	0.0	0.0
14	PHM -05A-SW-2	Entrance Channel	05A	S	9Apr86		.		4.0	0.0	0.0
15	PHM -03A-SW-1	West Loch	03A	S	9Apr86	125500	0.5	INCMG	0.0	0.0	0.0
16	PHM -03A-SW-2	West Loch	03A	S	9Apr86	125600	0.5	INCMG	0.0	0.0	0.0
17	PHM -03A-SW-3	West Loch	03A	S	9Apr86	125700	0.5	INCMG	0.0	0.0	0.0
18	PHM -08A-SW-1	Southeast Loch	08A	S	8Apr86	122300	1	INCMG	5.0	9.0	12.0
19	PHM -08A-SW-2	Southeast Loch	08A	S	8Apr86	122400	1	INCMG	.	.	.
20	PHM -08A-SW-3	Southeast Loch	08A	S	8Apr86	122500	1	INCMG	5.0	4.0	10.0
21	PHM -08A-DW-1	Southeast Loch	08A	D	8Apr86	121500	11.5	INCMG	0.0	0.0	0.0
22	PHM -08A-DW-2	Southeast Loch	08A	D	8Apr86	121600	11.5	INCMG	0.0	0.0	0.0
23	PHM -08A-DW-3	Southeast Loch	08A	D	8Apr86	121700	11.5	INCMG	0.0	0.0	0.0
24	PHM -09 -SW-1	Southeast Loch	09	S	17Apr86	104500	1	HISLK	8.0	4.0	13.0
25	PHM -09 -SW-2	Southeast Loch	09	S	17Apr86	104600	1	HISLK	0.0	4.0	8.0
26	PHM -09 -SW-3	Southeast Loch	09	S	17Apr86	104700	1	HISLK	8.0	4.0	12.0
27	PHM -10 -SW-1	Southeast Loch	10	S	17Apr86	103000	1	INCMG	5.0	8.0	35.0
28	PHM -10 -SW-2	Southeast Loch	10	S	17Apr86	103100	1	INCMG	0.0	3.0	0.0
29	PHM -10 -SW-3	Southeast Loch	10	S	17Apr86	103200	1	INCMG	4.0	9.0	32.0
30	PHM -10A-SW-1	Southeast Loch	10A	S	8Apr86	115500	1	INCMG	8.0	4.0	9.0
31	PHM -10A-SW-1	Southeast Loch	10A	S	8Apr86	115600	1	INCMG	.	.	.
32	PHM -10A-SW-3	Southeast Loch	10A	S	8Apr86	115700	1	INCMG	9.0	5.0	17.0
33	PHM -10A-DW-1	Southeast Loch	10A	D	8Apr86	114500	11	INCMG	0.0	0.0	7.0
34	PHM -10A-DW-2	Southeast Loch	10A	D	8Apr86	114600	11	INCMG	.	.	.
35	PHM -10A-DW-3	Southeast Loch	10A	D	8Apr86	114700	11	INCMG	3.0	3.0	8.0
36	PHM -10B-SW-1*	Southeast Loch	10B	S	8Apr86	125100	1	INCMG	4.0	8.0	32.0
37	PHM -10B-SW-2*	Southeast Loch	10B	S	8Apr86	125200	1	INCMG	5.0	12.0	61.0
38	PHM -10B-SW-3*	Southeast Loch	10B	S	8Apr86	125300	1	INCMG	8.0	13.0	53.0
39	PHM -11 -SW-1	Southeast Loch	11	S	8Apr86	110400	1	INCMG	0.0	4.0	11.0
40	PHM -11 -SW-2	Southeast Loch	11	S	[illegible]Apr86	110500	1	INCMG	0.0	3.0	20.0
41	PHM -11 -SW-3	Southeast Loch	11	S	[illegible]pr86	110600	1	INCMG	0.0	0.0	0.0
42	PHM -11 -DW-1	Southeast Loch	11	D	[illegible]pr86	110000	8	INCMG	0.0	5.0	9.0
43	PHM -11 -DW-2	Southeast Loch	11	D	8Apr86	110100	8	INCMG	.	.	.
44	PHM -11 -DW-3	Southeast Loch	11	D	8Apr86	110200	8	INCMG	0.0	4.0	6.0
45	PHM -19 -SW-3	Middle Loch	19	S	9Apr86	113100	1	INCMG	0.0	2.0	0.0
46	PHM -19 -DW-1	Middle Loch	19	D	9Apr86	112500	7	INCMG	0.0	0.0	0.0
47	PHM -19 -DW-2	Middle Loch	19	D	9Apr86	112600	7	INCMG	.	.	.
48	PHM -19 -DW-3	Middle Loch	19	D	9Apr86	112700	7	INCMG	0.0	0.0	0.0
49	PHM -14 -SW-1	Rainbow Marina	14	S	8Apr86	131500	1	INCMG	0.0	9.0	20.0
50	PHM -14 -SW-2	Rainbow Marina	14	S	8Apr86	131600	1	INCMG	0.0	6.0	20.0
51	PHM -14 -SW-3	Rainbow Marina	14	S	8Apr86	131700	1	INCMG	0.0	6.0	18.0
52	PHM -14 -DW-1	Rainbow Marina	14	D	8Apr86	131000	4	INCMG	0.0	4.0	0.0
53	PHM -14 -DW-2	Rainbow Marina	14	D	8Apr86	131100	4	INCMG	.	.	.
54	PHM -14 -DW-3	Rainbow Marina	14	D	8Apr86	131200	4	INCMG	0.0	2.0	0.0
55	PHM -14B-SW-1	Rainbow Marina	14B	S	17Apr86	132000	0.5	SLACK	7.0	4.0	0.0
56	PHM -14B-SW-2	Rainbow Marina	14B	S	17Apr86	132100	0.5	SLACK	.	.	.
57	PHM -14B-SW-3	Rainbow Marina	14B	S	17Apr86	132200	0.5	SLACK	6.0	4.0	10.0
58	PHM -16 -SW-1	Waiau Shoal	16	S	9Apr86	105500	1	LOSLK	0.0	0.0	0.0
59	PHM -16 -SW-2	Waiau Shoal	16	S	9Apr86	105600	1	LOSLK	.	.	.
60	PHM -16 -SW-3	Waiau Shoal	16	S	9Apr86	105700	1	LOSLK	0.0	0.0	0.0
61	PHM -16 -DW-1	Waiau Shoal	16	D	9Apr86	105000	2	LOSLK	0.0	0.0	0.0
62	PHM -16 -DW-2	Waiau Shoal	16	D	9Apr86	105100	2	LOSLK	.	.	.
63	PHM -16 -DW-3	Waiau Shoal	16	D	9Apr86	105200	2	LOSLK	0.0	0.0	0.0
64	PHM -03B-SW-1*	Alfa Docks	03B	S	17Apr86	110800	1	SLACK	11.0	7.0	39.0
65	PHM -03B-SW-2*	Alfa Docks	03B	S	17Apr86	110900	1	SLACK	6.0	8.0	38.0
66	PHM -03B-SW-3*	Alfa Docks	03B	S	17Apr86	111000	1	SLACK	7.0	7.0	32.0
67	PHM02-01 -SW-1	Entrance Channel	01	S	9Feb87	104600	0.5	LOSLK	5.7	4.1	3.1
68	PHM02-01 -SW-2	Entrance Channel	01	S	9Feb87	104700	0.5	LOSLK	5.3	6.4	4.7
69	PHM02-01 -SW-3	Entrance Channel	01	S	9Feb87	104800	0.5	LOSLK	1.2	2.7	1.3
70	PHM02-01 -DW-1	Entrance Channel	01	D	9Feb87	104900	11.5	LOSLK	2.7	0.8	1.7
71	PHM02-01 -DW-2	Entrance Channel	01	D	9Feb87	105000	11.5	LOSLK	2.8	0.8	2.1

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
72	PHM02-01 -DW-3	Entrance Channel	01	D	9Feb87	105100	11.5	LOSLK	2.0	1.0	2.1
73	PHM02-01A-SW-1	Entrance Channel	01A	S	21Feb87	150900	0.5	LOSLK	3.5	8.2	4.8
74	PHM02-01A-SW-2	Entrance Channel	01A	S	21Feb87	151000	0.5	LOSLK	4.6	3.5	2.3
75	PHM02-01A-SW-3	Entrance Channel	01A	S	21Feb87	151100	0.5	LOSLK	3.5	4.2	2.9
76	PHM02-01B-SW-1	Entrance Channel	01B	S	21Feb87	152400	0.5	LOSLK	1.5	2.4	1.1
77	PHM02-01B-SW-2	Entrance Channel	01B	S	21Feb87	152500	0.5	LOSLK	25.0	4.4	4.5
78	PHM02-01B-SW-3	Entrance Channel	01B	S	21Feb87	152600	0.5	LOSLK	2.7	1.7	0.6
79	PHM02-01C-SW-1	Entrance Channel	01C	S	21Feb87	152900	0.5	LOSLK	2.8	2.4	2.4
80	PHM02-01C-SW-2	Entrance Channel	01C	S	21Feb87	153000	0.5	LOSLK	24.0	5.8	4.9
81	PHM02-01C-SW-3	Entrance Channel	01C	S	21Feb87	153100	0.5	LOSLK	1.7	4.2	2.1
82	PHM02-02 -SW-1	Entrance Channel	02	S	21Feb87	153400	0.5	LOSLK	8.1	1.9	0.9
83	PHM02-02 -SW-2	Entrance Channel	02	S	21Feb87	153500	0.5	LOSLK	2.7	1.7	0.6
84	PHM02-02 -SW-3	Entrance Channel	02	S	21Feb87	153600	0.5	LOSLK	4.5	3.6	1.3
85	PHM02-05 -SW-1	Entrance Channel	05	S	9Feb87	112100	0.5	LOSLK	1.2	7.6	3.7
86	PHM02-05 -SW-2	Entrance Channel	05	S	9Feb87	112200	0.5	LOSLK	2.4	8.0	4.1
87	PHM02-05 -SW-3	Entrance Channel	05	S	9Feb87	112300	0.5	LOSLK	3.2	4.7	4.6
88	PHM02-05 -DW-1	Entrance Channel	05	D	9Feb87	112400	15	LOSLK	2.4	1.8	2.1
89	PHM02-05 -DW-2	Entrance Channel	05	D	9Feb87	112500	15	LOSLK	1.8	2.6	2.2
90	PHM02-05 -DW-3	Entrance Channel	05	D	9Feb87	112600	15	LOSLK	3.8	1.5	2.5
91	PHM02-05C-SW-1	Entrance Channel	05C	S	21Feb87	154900	0.5	LOSLK	4.9	5.4	1.9
92	PHM02-05C-SW-2	Entrance Channel	05C	S	21Feb87	155000	0.5	LOSLK	41.0	8.6	2.9
93	PHM02-05C-SW-3	Entrance Channel	05C	S	21Feb87	155100	0.5	LOSLK	2.6	3.4	1.4
94	PHM02-03A-SW-1	West Loch	03A	S	10Feb87	101300	0.5	LOSLK	2.5	1.2	1.0
95	PHM02-03A-SW-2	West Loch	03A	S	10Feb87	101400	0.5	LOSLK	1.9	0.5	0.5
96	PHM02-03A-SW-3	West Loch	03A	S	10Feb87	101500	0.5	LOSLK	2.4	1.1	0.4
97	PHM02-03A-DW-1	West Loch	03A	D	10Feb87	101600	4	LOSLK	3.4	2.3	0.4
98	PHM02-03A-DW-2	West Loch	03A	D	10Feb87	101700	4	LOSLK	0.9	0.5	1.0
99	PHM02-03A-DW-3	West Loch	03A	D	10Feb87	101800	4	LOSLK	1.9	2.9	2.5
100	PHM02-07A-SW-1	South Channel	07A	S	9Feb87	140500	0.5	LOSLK	7.7	9.8	11.0
101	PHM02-07A-SW-2	South Channel	07A	S	9Feb87	140600	0.5	LOSLK	3.6	8.4	3.5
102	PHM02-07A-SW-3	South Channel	07A	S	9Feb87	140700	0.5	LOSLK	17.0	11.0	6.8
103	PHM02-07A-DW-1	South Channel	07A	D	9Feb87	140900	12.5	LOSLK	15.0	4.3	6.0
104	PHM02-07A-DW-2	South Channel	07A	D	9Feb87	141000	12.5	LOSLK	6.0	4.5	3.5
105	PHM02-07A-DW-3	South Channel	07A	D	9Feb87	141100	12.5	LOSLK	26.0	10.0	11.0
106	PHM02-07B-SW-1	South Channel	07B	S	9Feb87	135900	0.5	LOSLK	7.0	4.6	4.7
107	PHM02-07B-SW-2	South Channel	07B	S	9Feb87	140000	0.5	LOSLK	3.9	5.2	3.9
108	PHM02-07B-SW-3	South Channel	07B	S	9Feb87	140100	0.5	LOSLK	7.1	5.5	3.2
109	PHM02-07B-DW-1	South Channel	07B	D	9Feb87	140200	15.5	LOSLK	3.9	1.4	2.5
110	PHM02-07B-DW-2	South Channel	07B	D	9Feb87	140300	15.5	LOSLK	8.0	1.9	1.1
111	PHM02-07B-DW-3	South Channel	07B	D	9Feb87	140400	15.5	LOSLK	1.0	0.7	3.0
112	PHM02-07C-SW-1	South Channel	07C	S	21Feb87	155400	0.5	LOSLK	34.0	8.1	9.5
113	PHM02-07C-SW-2	South Channel	07C	S	21Feb87	155500	0.5	LOSLK	34.0	10.0	7.9
114	PHM02-07C-SW-3	South Channel	07C	S	21Feb87	155600	0.5	LOSLK	0.2	1.9	1.4
115	PHM02-08B-SW-1	South Channel	08B	S	9Feb87	142700	0.5	LOSLK	8.5	4.9	5.4
116	PHM02-08B-SW-2	South Channel	08B	S	9Feb87	142800	0.5	LOSLK	8.7	3.4	11.0
117	PHM02-08B-SW-3	South Channel	08B	S	9Feb87	142900	0.5	LOSLK	17.0	3.8	12.0
118	PHM02-08B-DW-1	South Channel	08B	D	9Feb87	142400	13	LOSLK	3.6	1.7	5.9
119	PHM02-08B-DW-2	South Channel	08B	D	9Feb87	142500	13	LOSLK	1.3	1.5	3.6
120	PHM02-08B-DW-3	South Channel	08B	D	9Feb87	142600	13	LOSLK	3.7	2.3	10.0
121	PHM02-08C-SW-1	South Channel	08C	S	9Feb87	143200	0.5	LOSLK	1.7	4.5	3.5
122	PHM02-08C-SW-2	South Channel	08C	S	9Feb87	143300	0.5	LOSLK	1.9	4.4	2.2
123	PHM02-08C-SW-3	South Channel	08C	S	9Feb87	143400	0.5	LOSLK	2.6	6.3	2.5
124	PHM02-08C-DW-1	South Channel	08C	D	9Feb87	143500	14	LOSLK	2.5	2.9	3.2
125	PHM02-08C-DW-2	South Channel	08C	D	9Feb87	143600	14	LOSLK	1.9	0.9	4.2
126	PHM02-08C-DW-3	South Channel	08C	D	9Feb87	143700	14	LOSLK	3.0	3.6	2.7
127	PHM02-09A-SW-1	South Channel	09A	S	9Feb87	145800	0.5	LOSLK	3.9	6.2	3.9
128	PHM02-09A-SW-2	South Channel	09A	S	9Feb87	145900	0.5	LOSLK	3.8	8.8	11.0
129	PHM02-09A-SW-3	South Channel	09A	S	9Feb87	150000	0.5	LOSLK	4.1	3.3	5.7
130	PHM02-09A-SW-1	South Channel	09A	S	21Feb87	155900	0.5	LOSLK	34.0	14.0	29.0
131	PHM02-09A-SW-2	South Channel	09A	S	21Feb87	160000	0.5	LOSLK	19.0	26.0	13.0
132	PHM02-09A-SW-3	South Channel	09A	S	21Feb87	160100	0.5	LOSLK	37.0	7.4	6.8
133	PHM02-09A-DW-1	South Channel	09A	D	9Feb87	145500	14	LOSLK	3.1	1.5	1.8
134	PHM02-09A-DW-2	South Channel	09A	D	9Feb87	145600	14	LOLSK	2.5	1.2	2.8
135	PHM02-09A-DW-3	South Channel	09A	D	9Feb87	145700	14	LOSLK	2.9	1.5	3.4
136	PHM02-07 -SW-1	Drydock #2	07	S	9Feb87	141400	0.5	LOSLK	29.0	21.0	7.8
137	PHM02-07 -SW-2	Drydock #2	07	S	9Feb87	141500	0.5	LOSLK	19.0	6.7	12.0
138	PHM02-07 -SW-3	Drydock #2	07	S	9Feb87	141600	0.5	LOSLK	9.8	4.5	6.0
139	PHM02-07 -DW-1	Drydock #2	07	D	9Feb87	141700	15.5	LOSLK	0.6	1.4	7.1
140	PHM02-07 -DW-2	Drydock #2	07	D	9Feb87	141800	15.5	LOSLK	12.0	4.4	3.3
141	PHM02-07 -DW-3	Drydock #2	07	D	9Feb87	141900	15.5	LOSLK	20.0	7.9	11.0
142	PHM02-09 -SW-1	Southeast Loch	09	S	9Feb87	150500	0.5	LOSLK	3.7	10.0	9.8

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
143	PHM02-09 -SW-2	Southeast Loch	09	S	9Feb87	150600	0.5	LOSLK	4.8	9.6	18.0
144	PHM02-09 -SW-3	Southeast Loch	09	S	9Feb87	150700	0.5	LOSLK	6.2	9.2	7.2
145	PHM02-09 -DW-1	Southeast Loch	09	D	9Feb87	150200	13.5	LOSLK	3.0	4.0	8.7
146	PHM02-09 -DW-2	Southeast Loch	09	D	9Feb87	150300	13.5	LOSLK	3.1	1.7	3.6
147	PHM02-09 -DW-3	Southeast Loch	09	D	9Feb87	150400	13.5	LOSLK	2.8	3.6	5.6
148	PHM02-09B-SW-1	Southeast Loch	09B	S	9Feb87	154400	0.5	LOSLK	3.7	7.3	12.0
149	PHM02-09B-SW-2	Southeast Loch	09B	S	9Feb87	154500	0.5	LOSLK	12.0	5.9	19.0
150	PHM02-09B-SW-3	Southeast Loch	09B	S	9Feb87	154600	0.5	LOSLK	6.2	8.5	13.0
151	PHM02-09B-DW-1	Southeast Loch	09B	D	9Feb87	154100	13	LOSLK	11.0	2.1	5.6
152	PHM02-09B-DW-2	Southeast Loch	09B	D	9Feb87	154200	13	LOSLK	2.8	1.9	5.6
153	PHM02-09B-DW-3	Southeast Loch	09B	D	9Feb87	154300	13	LOSLK	3.5	3.2	2.8
154	PHM02-10 -SW-1*	Southeast Loch	10	S	9Feb87	153300	0.5	LOSLK	9.6	19.0	110.0
155	PHM02-10 -SW-2*	Southeast Loch	10	S	9Feb87	153400	0.5	LOSLK	1.8	38.0	100.0
156	PHM02-10 -SW-3*	Southeast Loch	10	S	9Feb87	153500	0.5	LOSLK	4.6	30.0	85.0
157	PHM02-10 -DW-1*	Southeast Loch	10	D	9Feb87	153000	12	LOSLK	4.2	7.0	10.0
158	PHM02-10 -DW-2*	Southeast Loch	10	D	9Feb87	153100	12	LOSLK	0.6	7.0	7.2
159	PHM02-10 -DW-3*	Southeast Loch	10	D	9Feb87	153200	12	LOSLK	3.3	8.4	12.0
160	PHM02-10C-SW-1	Southeast Loch	10C	S	9Feb87	151500	0.5	LOSLK	5.7	6.7	7.4
161	PHM02-10C-SW-2	Southeast Loch	10C	S	9Feb87	151600	0.5	LOSLK	5.2	4.7	6.1
162	PHM02-10C-SW-3	Southeast Loch	10C	S	9Feb87	151770	0.5	LOSLK	8.1	7.1	8.2
163	PHM02-10C-DW-1	Southeast Loch	10C	D	9Feb87	151200	11.5	LOSLK	16.0	5.1	5.2
164	PHM02-10C-DW-2	Southeast Loch	10C	D	9Feb87	151300	11.5	LOSLK	5.5	5.8	6.6
165	PHM02-10C-LW-3	Southeast Loch	10C	D	9Feb87	151400	11.5	LOSLK	4.1	3.1	4.6
166	PHM02-11 -SW-1	Southeast Loch	11	S	9Feb87	152500	0.5	LOSLK	6.7	12.0	28.0
167	PHM02-11 -SW-2	Southeast Loch	11	S	9Feb87	152600	0.5	LOSLK	6.5	7.8	15.0
168	PHM02-11 -SW-3	Southeast Loch	11	S	9Feb87	152700	0.5	LOSLK	8.8	16.0	32.0
169	PHM02-11 -DW-1	Southeast Loch	11	D	9Feb87	152200	12	LOSLK	2.8	0.2	4.2
170	PHM02-11 -DW-2	Southeast Loch	11	D	9Feb87	152300	12	LOSLK	2.2	2.2	7.6
171	PHM02-11 -DW-3	Southeast Loch	11	D	9Feb87	152400	12	LOSLK	3.5	3.8	7.1
172	PHM02-06 -SW-1	North Channel	06	S	9Feb87	134300	0.5	LOSLK	1.5	1.7	3.8
173	PHM02-06 -SW-2	North Channel	06	S	9Feb87	134100	0.5	LOSLK	6.3	10.0	6.1
174	PHM02-06 -SW-3	North Channel	06	S	9Feb87	134200	0.5	LOSLK	4.2	8.5	4.2
175	PHM02-06 -DW-1	North Channel	06	D	9Feb87	134500	3	LOSLK	19.0	8.5	4.6
176	PHM02-06 -DW-2	North Channel	06	D	9Feb87	134600	3	LOSLK	17.0	5.5	8.7
177	PHM02-06 -DW-3	North Channel	06	D	9Feb87	134700	3	LOSLK	11.0	4.5	5.8
178	PHM02-15 -SW-1	North Channel	15	S	9Feb87	121100	0.5	LOSLK	4.5	7.3	5.2
179	PHM02-15 -SW-2	North Channel	15	S	9Feb87	121200	0.5	LOSLK	2.0	7.3	2.4
180	PHM02-15 -SW-3	North Channel	15	S	9Feb87	121300	0.5	LOSLK	1.0	3.3	2.2
181	PHM02-15 -DW-1	North Channel	15	D	9Feb87	121500	13	LOSLK	1.3	2.8	1.6
182	PHM02-15 -DW-2	North Channel	15	D	9Feb87	121600	13	LOSLK	3.7	2.4	2.2
183	PHM02-15 -DW-3	North Channel	15	D	9Feb87	121700	13	LOSLK	2.1	2.8	1.4
184	PHM02-19 -SW-1	Middle Loch	19	S	9Feb87	114300	0.5	LOSLK	2.8	4.6	0.9
185	PHM02-19 -SW-2	Middle Loch	19	S	9Feb87	114400	0.5	LOSLK	2.0	4.0	2.1
186	PHM02-19 -SW-3	Middle Loch	19	S	9Feb87	114500	0.5	LOSLK	3.1	5.6	1.9
187	PHM02-19 -DW-1	Middle Loch	19	D	9Feb87	114600	6	LOSLK	1.0	1.6	1.8
188	PHM02-19 -DW-2	Middle Loch	19	D	9Feb87	114700	6	LOSLK	0.8	1.9	0.9
189	PHM02-19 -DW-3	Middle Loch	19	D	9Feb87	114800	6	LOSLK	1.7	3.8	0.9
190	PHM02-14 -SW-1	Rainbow Marina	14	S	9Feb87	122500	0.5	LOSLK	3.1	9.3	7.0
191	PHM02-14 -SW-2	Rainbow Marina	14	S	9Feb87	122600	0.5	LOSLK	2.9	8.0	6.6
192	PHM02-14 -SW-3	Rainbow Marina	14	S	9Feb87	122700	0.5	LOSLK	2.6	6.2	6.6
193	PHM02-14 -DW-1	Rainbow Marina	14	D	9Feb87	122800	5.5	LOSLK	1.7	7.3	4.5
194	PHM02-14 -DW-2	Rainbow Marina	14	D	9Feb87	122900	5.5	LOSLK	4.0	8.0	6.8
195	PHM02-14 -DW-3	Rainbow Marina	14	D	9Feb87	123000	5.5	LOSLK	3.1	7.6	5.6
196	PHM02-16 -SW-1	Waiau Shoal	16	S	9Feb87	120000	0.5	LOSLK	1.7	6.2	2.7
197	PHM02-16 -SW-2	Waiau Shoal	16	S	9Feb87	120100	0.5	LOSLK	2.2	6.9	4.0
198	PHM02-16 -SW-3	Waiau Shoal	16	S	9Feb87	120200	0.5	LOSLK	1.5	4.1	2.6
199	PHM02-16 -DW-1	Waiau Shoal	16	D	9Feb87	120300	3.5	LOSLK	2.2	8.1	5.2
200	PHM02-16 -DW-2	Waiau Shoal	16	D	9Feb87	120400	3.5	LOSLK	1.5	6.3	3.0
201	PHM02-16 -DW-3	Waiau Shoal	16	D	9Feb87	120500	3.5	LOSLK	1.0	3.3	3.1
202	PHM02-03B-SW-1	Alfa Docks	03B	S	21Feb87	154200	0.5	LOSLK	2.0	5.2	2.3
203	PHM02-03B-SW-2	Alfa Docks	03B	S	21Feb87	154300	0.5	LOSLK	21.0	12.0	5.3
204	PHM02-03B-SW-3	Alfa Docks	03B	S	21Feb87	154400	0.5	LOSLK	47.0	15.0	8.0
205	PHM02-05B-SW-1	Drydock #4	05B	S	9Feb87	111700	0.5	LOSLK	3.7	8.6	5.5
206	PHM02-05B-SW-2	Drydock #4	05B	S	9Feb87	111800	0.5	LOSLK	3.1	8.2	4.2
207	PHM02-05B-SW-3	Drydock #4	05B	S	9Feb87	111900	0.5	LOSLK	2.8	9.0	7.5
208	PHM02-05B-DW-1	Drydock #4	05B	D	9Feb87	111400	16	LOSLK	1.8	2.4	2.2
209	PHM02-05B-DW-2	Drydock #4	05B	D	9Feb87	111500	16	LOSLK	27.0	18.0	6.1
210	PHM02-05B-DW-3	Drydock #4	05B	D	9Feb87	111600	16	LOSLK	2.2	2.6	2.9
211	PHM03-01 -SW-1	Entrance Channel	01	S	16Apr87	124400	0.5	INCMG	2.2	2.7	6.8
212	PHM03-01 -SW-2	Entrance Channel	01	S	16Apr87	124500	0.5	INCMG	3.3	3.3	10.0
213	PHM03-01 -SW-3	Entrance Channel	01	S	16Apr87	124600	0.5	INCMG	2.9	2.4	7.5

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
214	PHM03-01 -DW-1	Entrance Channel	01	D	16Apr87	124700	12.5	INCMG	0.5	0.7	1.4
215	PHM03-01 -DW-2	Entrance Channel	01	D	16Apr87	124800	12.5	INCMG	2.3	1.1	2.1
216	PHM03-01 -DW-3	Entrance Channel	01	D	16Apr87	124900	12.5	INCMG	1.7	0.5	1.3
217	PHM03-03 -SW-1	Entrance Channel	03	S	16Apr87	125200	0.5	INCMG	15.0	8.5	15.0
218	PHM03-03 -DW-1	Entrance Channel	03	D	16Apr87	125300	14	INCMG	1.8	0.6	2.0
219	PHM03-05 -SW-1	Entrance Channel	05	S	16Apr87	122200	0.5	INCMG	3.4	4.6	10.0
220	PHM03-05 -DW-1	Entrance Channel	05	D	16Apr87	122000	14	INCMG	5.3	2.5	2.1
221	PHM03-03E-SW-1	West Loch	03E	S	16Apr87	123700	0.5	INCMG	4.2	2.1	3.0
222	PHM03-03E-SW-2	West Loch	03E	S	16Apr87	123800	0.5	INCMG	.	.	.
223	PHM03-03E-SW-3	West Loch	03E	S	16Apr87	123900	0.5	INCMG	6.5	2.1	3.8
224	PHM03-03E-DW-1	West Loch	03E	D	16Apr87	123400	14.5	INCMG	0.8	0.8	1.2
225	PHM03-03E-DW-2	West Loch	03E	D	16Apr87	123500	14.5	INCMG	3.0	1.3	2.4
226	PHM03-03E-DW-3	West Loch	03E	D	16Apr87	123600	14.5	INCMG	4.1	3.0	1.5
227	PHM03-07B-SW-1	South Channel	07B	S	16Apr87	135700	0.5	INCMG	1.5	2.3	3.9
228	PHM03-07B-DW-1	South Channel	07B	D	16Apr87	135600	15	INCMG	0.2	1.1	2.6
229	PHM03-08B-SW-1	South Channel	08B	S	16Apr87	140800	0.5	INCMG	2.5	4.0	0.4
230	PHM03-08B-DW-1	South Channel	08B	D	16Apr87	140700	14	INCMG	4.1	0.8	5.2
231	PHM03-09A-SW-1	South Channel	09A	S	16Apr87	141200	0.5	INCMG	6.5	4.6	7.7
232	PHM03-09A-DW-1	South Channel	09A	D	16Apr87	141100	13	INCMG	3.6	2.0	7.7
233	PHM03-07 -SW-1	Drydock #2	07	S	16Apr87	140300	0.5	INCMG	3.0	4.3	8.7
234	PHM03-07 -SW-2	Drydock #2	07	S	16Apr87	140400	0.5	INCMG	10.0	5.0	8.0
235	PHM03-07 -SW-3	Drydock #2	07	S	16Apr87	140500	0.5	INCMG	8.1	5.8	8.3
236	PHM03-07 -DW-1	Drydock #2	07	D	16Apr87	140000	16	INCMG	3.1	4.0	46.0
237	PHM03-07 -DW-2	Drydock #2	07	D	16Apr87	140100	16	INCMG	1.0	2.2	14.0
238	PHM03-07 -DW-3	Drydock #2	07	D	16Apr87	140200	16	INCMG	3.8	3.4	17.0
239	PHM03-09 -SW-1	Southeast Loch	09	S	16Apr87	141700	0.5	INCMG	2.9	4.3	8.4
240	PHM03-09 -DW-1	Southeast Loch	09	D	16Apr87	141600	15	INCMG	2.7	2.2	6.0
241	PHM03-09B-SW-1	Southeast Loch	09B	S	16Apr87	142500	0.5	INCMG	8.0	5.1	21.0
242	PHM03-09B-SW-2	Southeast Loch	09B	S	16Apr87	142600	0.5	INCMG	8.1	7.6	11.0
243	PHM03-09B-SW-3	Southeast Loch	09B	S	16Apr87	142700	0.5	INCMG	8.6	6.6	21.0
244	PHM03-09B-DW-1	Southeast Loch	09B	D	16Apr87	142200	12	INCMG	8.6	4.6	8.8
245	PHM03-09B-DW-2	Southeast Loch	09B	D	16Apr87	142300	12	INCMG	4.4	5.8	4.5
246	PHM03-09B-DW-3	Southeast Loch	09B	D	16Apr87	142400	12	INCMG	3.9	4.7	3.5
247	PHM03-10 -SW-1	Southeast Loch	10	S	16Apr87	143600	0.5	INCMG	9.0	7.5	7.2
248	PHM03-10 -DW-1	Southeast Loch	10	D	16Apr87	143400	13	INCMG	6.3	4.4	8.7
249	PHM03-10B-SW-1*	Southeast Loch	10B	S	16Apr87	143000	0.5	INCMG	11.0	42.0	26.0
250	PHM03-10B-DW-1*	Southeast Loch	10B	D	16Apr87	142900	13	INCMG	7.0	7.7	13.0
251	PHM03-11 -SW-1	Southeast Loch	11	S	16Apr87	144100	0.5	INCMG	5.4	10.0	10.0
252	PHM03-11 -SW-2	Southeast Loch	11	S	16Apr87	144200	0.5	INCMG	3.9	11.0	12.0
253	PHM03-11 -SW-3	Southeast Loch	11	S	16Apr87	144300	0.5	INCMG	5.5	11.0	15.0
254	PHM03-11 -DW-1	Southeast Loch	11	D	16Apr87	143800	12	INCMG	6.1	17.0	18.0
255	PHM03-11 -DW-2	Southeast Loch	11	D	16Apr87	143900	12	INCMG	7.0	16.0	13.0
256	PHM03-11 -DW-3	Southeast Loch	11	D	16Apr87	144000	12	INCMG	7.3	13.0	15.0
257	PHM03-06 -SW-1	North Channel	06	S	16Apr87	121700	0.5	INCMG	4.0	4.0	6.2
258	PHM03-06 -DW-1	North Channel	06	D	16Apr87	121600	1.5	INCMG	4.0	2.9	3.4
259	PHM03-15 -SW-1	North Channel	15	S	16Apr87	145900	0.5	INCMG	4.9	2.8	4.3
260	PHM03-15 -DW-1	North Channel	15	D	16Apr87	145800	13	INCMG	3.9	1.7	1.9
261	PHM03-17 -SW-1*	North Channel	17	S	16Apr87	115000	0.5	INCMG	11.0	4.0	9.4
262	PHM03-17 -DW-1*	North Channel	17	D	16Apr87	114800	13.5	INCMG	.	.	.
263	PHM03-18A-SW-1*	North Channel	18A	S	16Apr87	115900	0.5	INCMG	3.1	4.1	3.5
264	PHM03-18A-SW-2*	North Channel	18A	S	16Apr87	120000	0.5	INCMG	6.1	3.9	5.7
265	PHM03-18A-SW-3*	North Channel	18A	S	16Apr87	120100	0.5	INCMG	3.2	3.9	4.3
266	PHM03-18A-DW-1*	North Channel	18A	D	16Apr87	115600	14	INCMG	4.2	1.1	2.7
267	PHM03-18A-DW-2*	North Channel	18A	D	16Apr87	115700	14	INCMG	1.2	1.9	3.5
268	PHM03-18A-DW-3*	North Channel	18A	D	16Apr87	115800	14	INCMG	3.2	2.3	2.8
269	PHM03-19 -SW-1	Middle Loch	19	S	16Apr87	120700	0.5	INCMG	5.0	2.1	2.5
270	PHM03-19 -SW-2	Middle Loch	19	S	16Apr87	120800	0.5	INCMG	8.0	1.8	2.1
271	PHM03-19 -SW-3	Middle Loch	19	S	16Apr87	120900	0.5	INCMG	3.5	2.4	6.0
272	PHM03-19 -DW-1	Middle Loch	19	D	16Apr87	120400	6	INCMG	4.2	2.5	1.5
273	PHM03-19 -DW-2	Middle Loch	19	D	16Apr87	120500	6	INCMG	3.7	3.1	1.9
274	PHM03-19 -DW-3	Middle Loch	19	D	16Apr87	120600	6	INCMG	9.1	14.0	1.8
275	PHM03-14 -SW-1	Rainbow Marina	14	S	16Apr87	150700	0.5	INCMG	5.1	9.5	25.0
276	PHM03-14 -SW-2	Rainbow Marina	14	S	16Apr87	150800	0.5	INCMG	19.0	6.7	27.0
277	PHM03-14 -SW-3	Rainbow Marina	14	S	16Apr87	150900	0.5	INCMG	9.3	6.8	28.0
278	PHM03-14 -DW-1	Rainbow Marina	14	D	16Apr87	150400	6	INCMG	4.4	2.8	6.3
279	PHM03-14 -DW-2	Rainbow Marina	14	D	16Apr87	150500	6	INCMG	8.8	3.6	8.3
280	PHM03-14 -DW-3	Rainbow Marina	14	D	16Apr87	150600	6	INCMG	4.1	2.1	4.7
281	PHM03-16 -SW-1	Waiau Shoal	16	S	16Apr87	114400	0.5	INCMG	4.3	2.7	4.6
282	PHM03-16 -SW-2	Waiau Shoal	16	S	16Apr87	114500	0.5	INCMG	5.0	3.9	5.8
283	PHM03-16 -SW-3	Waiau Shoal	16	S	16Apr87	114600	0.5	INCMG	3.3	2.8	4.3
284	PHM03-16 -DW-1	Waiau Shoal	16	D	16Apr87	114100	4.5	INCMG	3.1	2.3	1.6

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
285	PHM03-16 -DW-2	Waiau Shoal	16	D	16Apr87	114200	4.5	INCMG	3.3	3.4	2.7
286	PHM03-16 -DW-3	Waiau Shoal	16	D	16Apr87	114300	4.5	INCMG	3.1	2.7	2.1
287	PHM03-05B-SW-1	Drydock #4	05B	S	16Apr87	122400	0.5	INCMG	2.2	4.8	3.8
288	PHM03-05B-SW-2	Drydock #4	05B	S	16Apr87	122500	0.5	INCMG	2.2	5.8	3.8
289	PHM03-05B-SW-3	Drydock #4	05B	S	16Apr87	122600	0.5	INCMG	2.4	2.4	2.7
290	PHM03-05B-DW-1	Drydock #4	05B	D	16Apr87	122700	16.5	INCMG	3.3	5.0	1.6
291	PHM03-05B-DW-2	Drydock #4	05B	D	16Apr87	122800	16.5	INCMG	1.5	1.0	1.9
292	PHM03-05B-DW-3	Drydock #4	05B	D	16Apr87	122900	16.5	INCMG	1.0	1.0	2.2
293	PHM04-01 -SW-1	Entrance Channel	01	S	28Jul87	114400	0.5	INCMG	2.2	3.5	3.8
294	PHM04-01 -SW-2	Entrance Channel	01	S	28Jul87	114500	0.5	INCMG	2.3	2.2	2.8
295	PHM04-01 -SW-3	Entrance Channel	01	S	28Jul87	114600	0.5	INCMG	1.7	2.3	3.2
296	PHM04-01 -DW-1	Entrance Channel	01	D	28Jul87	113900	19	INCMG	2.8	1.1	0.7
297	PHM04-01 -DW-2	Entrance Channel	01	D	28Jul87	114000	19	INCMG	1.6	1.0	0.8
298	PHM04-01 -DW-3	Entrance Channel	01	D	28Jul87	114100	19	INCMG	2.5	0.7	0.6
299	PHM04-03 -SW-1	Entrance Channel	03	S	28Jul87	115500	0.5	INCMG	2.4	1.9	1.1
300	PHM04-03 -DW-1	Entrance Channel	03	D	28Jul87	115300	14	INCMG	1.4	0.8	0.6
301	PHM04-05 -SW-1	Entrance Channel	05	S	28Jul87	121500	0.5	INCMG	9.0	6.3	2.8
302	PHM04-05 -DW-1	Entrance Channel	05	D	28Jul87	121300	16	INCMG	1.7	1.3	1.1
303	PHM04-03A-SW-1	West Loch	03A	S	28Jul87	112400	0.5	INCMG	1.9	0.7	0.0
304	PHM04-03A-SW-2	West Loch	03A	S	28Jul87	112500	0.5	INCMG	0.4	0.4	0.0
305	PHM04-03A-SW-3	West Loch	03A	S	28Jul87	112600	0.5	INCMG	0.7	0.5	0.0
306	PHM04-03A-DW-1	West Loch	03A	D	28Jul87	111900	6	INCMG	1.0	0.6	0.0
307	PHM04-03A-DW-2	West Loch	03A	D	28Jul87	112000	6	INCMG	1.5	1.1	0.0
308	PHM04-03A-DW-3	West Loch	03A	D	28Jul87	112100	6	INCMG	1.1	0.6	0.0
309	PHM04-07B-SW-1	South Channel	07B	S	28Jul87	123500	0.5	INCMG	3.9	4.1	1.9
310	PHM04-07B-DW-1	South Channel	07B	D	28Jul87	123400	11	INCMG	5.0	2.1	1.2
311	PHM04-08B-SW-1	South Channel	08B	S	28Jul87	124700	0.5	INCMG	3.5	5.2	2.8
312	PHM04-08B-DW-1	South Channel	08B	D	28Jul87	124600	13	INCMG	6.0	1.9	1.5
313	PHM04-07 -SW-1	Drydock #2	07	S	28Jul87	124300	0.5	INCMG	4.1	6.7	2.4
314	PHM04-07 -SW-2	Drydock #2	07	S	28Jul87	124400	0.5	INCMG	3.7	6.3	2.7
315	PHM04-07 -SW-3	Drydock #2	07	S	28Jul87	124500	0.5	INCMG	2.4	6.2	2.8
316	PHM04-07 -DW-1	Drydock #2	07	D	28Jul87	123900	15	INCMG	3.8	2.0	5.4
317	PHM04-07 -DW-2	Drydock #2	07	D	28Jul87	124000	15	INCMG	3.6	1.8	2.9
318	PHM04-07 -DW-3	Drydock #2	07	D	28Jul87	124100	15	INCMG	2.0	1.8	3.5
319	PHM04-09 -SW-1	Southeast Loch	09	S	28Jul87	125100	0.5	INCMG	2.5	5.5	3.6
320	PHM04-09 -DW-1	Southeast Loch	09	D	28Jul87	125000	13.5	INCMG	2.3	1.5	1.7
321	PHM04-09B-SW-1	Southeast Loch	09B	S	28Jul87	130700	0.5	INCMG	7.5	12.0	7.4
322	PHM04-09B-SW-2	Southeast Loch	09B	S	28Jul87	130800	0.5	INCMG	7.4	8.6	4.2
323	PHM04-09B-SW-3	Southeast Loch	09B	S	28Jul87	130900	0.5	INCMG	6.2	11.0	4.2
324	PHM04-09B-DW-1	Southeast Loch	09B	D	28Jul87	130400	13	INCMG	2.8	2.2	2.6
325	PHM04-09B-DW-2	Southeast Loch	09B	D	28Jul87	130500	13	INCMG	2.7	2.3	3.0
326	PHM04-09B-DW-3	Southeast Loch	09B	D	28Jul87	130600	13	INCMG	2.0	2.0	2.5
327	PHM04-10 -SW-1	Southeast Loch	10	S	28Jul87	125900	0.5	INCMG	6.0	8.4	5.0
328	PHM04-10 -SW-2	Southeast Loch	10	S	28Jul87	130000	0.5	INCMG	3.0	6.4	4.6
329	PHM04-10 -SW-3	Southeast Loch	10	S	28Jul87	130100	0.5	INCMG	6.4	7.3	3.1
330	PHM04-10 -DW-1	Southeast Loch	10	D	28Jul87	125500	12	INCMG	2.4	1.4	1.8
331	PHM04-10 -DW-2	Southeast Loch	10	D	28Jul87	125600	12	INCMG	1.9	2.1	2.1
332	PHM04-10 -DW-3	Southeast Loch	10	D	28Jul87	125700	12	INCMG	3.0	2.4	2.0
333	PHM04-11 -SW-1	Southeast Loch	11	S	28Jul87	144100	0.5	INCMG	11.0	14.0	9.4
334	PHM04-11 -SW-2	Southeast Loch	11	S	28Jul87	144200	0.5	INCMG	12.0	18.0	10.0
335	PHM04-11 -SW-3	Southeast Loch	11	S	28Jul87	144300	0.5	INCMG	6.1	13.0	6.3
336	PHM04-11 -DW-1	Southeast Loch	11	D	28Jul87	143700	12.5	INCMG	2.0	2.5	2.2
337	PHM04-11 -DW-2	Southeast Loch	11	D	28Jul87	143800	12.5	INCMG	2.2	2.1	2.7
338	PHM04-11 -DW-3	Southeast Loch	11	D	28Jul87	143900	12.5	INCMG	5.2	3.2	3.8
339	PHM04-06 -SW-1	North Channel	06	S	28Jul87	122100	0.5	INCMG	3.2	3.7	2.0
340	PHM04-06 -DW-1	North Channel	06	D	28Jul87	122000	1	INCMG	2.6	3.0	1.7
341	PHM04-15 -SW-1	North Channel	15	S	28Jul87	153600	0.5	INCMG	2.9	4.0	3.5
342	PHM04-15 -DW-1	North Channel	15	D	28Jul87	153400	13	INCMG	1.5	1.1	1.2
343	PHM04-18A-SW-1	North Channel	18A	S	28Jul87	150800	0.5	INCMG	2.9	3.8	3.7
344	PHM04-18A-DW-1	North Channel	18A	D	28Jul87	150600	11.5	INCMG	2.1	1.4	2.1
345	PHM04-19 -SW-1	Middle Loch	19	S	28Jul87	145700	0.5	INCMG	1.5	1.6	1.4
346	PHM04-19 -SW-2	Middle Loch	19	S	28Jul87	145800	0.5	INCMG	2.4	2.3	1.5
347	PHM04-19 -SW-3	Middle Loch	19	S	28Jul87	145900	0.5	INCMG	2.1	3.2	1.7
348	PHM04-19 -DW-1	Middle Loch	19	D	28Jul87	145400	7	INCMG	1.4	1.2	0.7
349	PHM04-19 -DW-2	Middle Loch	19	D	28Jul87	145500	7	INCMG	1.9	1.2	0.5
350	PHM04-19 -DW-3	Middle Loch	19	D	28Jul87	145600	7	INCMG	2.7	2.3	1.6
351	PHM04-14 -SW-1	Rainbow Marina	14	S	28Jul87	154500	0.5	INCMG	7.4	12.0	200.0
352	PHM04-14 -SW-2	Rainbow Marina	14	S	28Jul87	154600	0.5	INCMG	5.6	20.0	81.0
353	PHM04-14 -SW-3	Rainbow Marina	14	S	28Jul87	154700	0.5	INCMG	7.0	14.0	120.0
354	PHM04-14 -DW-1	Rainbow Marina	14	D	28Jul87	154200	5.5	INCMG	4.6	3.0	12.0
355	PHM04-14 -DW-2	Rainbow Marina	14	D	28Jul87	154300	5.5	INCMG	2.1	2.4	3.8

Pearl Harbor Organotin Monitoring
Water

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
356	PHM04-14 -DW-3	Rainbow Marina	14	D	28Jul87	154400	5.5	INCMG	2.8	1.8	1.0
357	PHM04-16 -SW-1	Waiau Shoal	16	S	28Jul87	152000	0.5	INCMG	4.4	4.2	2.7
358	PHM04-16 -DW-1	Waiau Shoal	16	D	28Jul87	152200	1	INCMG	3.1	3.4	2.7
359	PHM04-05B-SW-1	Drydock #4	05B	S	28Jul87	120400	0.5	INCMG	1.7	4.6	2.9
360	PHM04-05B-SW-2	Drydock #4	05B	S	28Jul87	120500	0.5	INCMG	3.8	4.8	2.3
361	PHM04-05B-SW-3	Drydock #4	05B	S	28Jul87	120600	0.5	INCMG	3.0	4.5	2.3
362	PHM04-05B-DW-1	Drydock #4	05B	D	28Jul87	120100	16	INCMG	2.1	1.3	1.9
363	PHM04-05B-DW-2	Drydock #4	05B	D	28Jul87	120200	16	INCMG	1.6	1.3	1.6
364	PHM04-05B-DW-3	Drydock #4	05B	D	28Jul87	120300	16	INCMG	2.7	2.2	1.5
365	PHM05-01 -SW-1	Entrance Channel	01	S	15Oct87	161800	0.5	OUTGO	1.1	3.8	0.4
366	PHM05-01 -SW-2	Entrance Channel	01	S	15Oct87	161900	0.5	OUTGO	2.2	3.2	1.0
367	PHM05-01 -SW-3	Entrance Channel	01	S	15Oct87	162000	0.5	OUTGO	1.7	2.8	1.6
368	PHM05-01 -DW-1	Entrance Channel	01	D	15Oct87	161500	13	OUTGO	1.5	0.8	0.5
369	PHM05-01 -DW-2	Entrance Channel	01	D	15Oct87	161600	13	OUTGO	0.0	1.8	0.8
370	PHM05-01 -DW-3	Entrance Channel	01	D	15Oct87	161700	13	OUTGO	1.9	1.2	1.3
371	PHM05-05C-SW-1	Entrance Channel	05C	S	15Oct87	163800	0.5	OUTGO	5.6	14.0	2.1
372	PHM05-05C-SW-2	Entrance Channel	05C	S	15Oct87	163900	0.5	OUTGO	1.2	3.5	0.5
373	PHM05-05C-SW-3	Entrance Channel	05C	S	15Oct87	164000	0.5	OUTGO	1.6	3.0	0.5
374	PHM05-05C-DW-1	Entrance Channel	05C	D	15Oct87	163500	15.5	OUTGO	0.2	1.4	0.4
375	PHM05-05C-DW-2	Entrance Channel	05C	D	15Oct87	163600	15.5	OUTGO	1.0	2.1	0.0
376	PHM05-05C-DW-3	Entrance Channel	05C	D	15Oct87	163700	15.5	OUTGO	0.8	0.8	0.3
377	PHM05-03A-SW-1	West Loch	03A	S	15Oct87	152400	0.5	OUTGO	0.3	0.8	0.0
378	PHM05-03A-SW-2	West Loch	03A	S	15Oct87	152500	0.5	OUTGO	0.0	0.7	0.0
379	PHM05-03A-SW-3	West Loch	03A	S	15Oct87	152600	0.5	OUTGO	0.0	0.5	0.0
380	PHM05-03A-DW-1	West Loch	03A	D	15Oct87	152000	6	OUTGO	0.2	0.7	0.4
381	PHM05-03A-DW-2	West Loch	03A	D	15Oct87	152100	6	OUTGO	0.5	0.4	0.0
382	PHM05-03A-DW-3	West Loch	03A	D	15Oct87	152200	6	OUTGO	0.9	0.3	0.0
383	PHM05-03D-SW-1	West Loch	03D	S	15Oct87	154000	0.5	OUTGO	0.9	0.9	0.0
384	PHM05-03D-SW-2	West Loch	03D	S	15Oct87	154100	0.5	OUTGO	2.1	0.7	0.2
385	PHM05-03D-SW-3	West Loch	03D	S	15Oct87	154200	0.5	OUTGO	0.6	0.6	0.2
386	PHM05-03D-DW-1	West Loch	03D	D	15Oct87	153700	15	OUTGO	0.7	0.5	0.4
387	PHM05-03D-DW-2	West Loch	03D	D	15Oct87	153800	15	OUTGO	2.6	0.8	0.4
388	PHM05-03D-DW-3	West Loch	03D	D	15Oct87	153900	15	OUTGO	2.0	0.6	0.3
389	PHM05-07B-SW-1	South Channel	07B	S	16Oct87	103100	0.5	HISLK	2.4	7.9	1.8
390	PHM05-07B-SW-2	South Channel	07B	S	16Oct87	103200	0.5	HISLK	2.0	6.9	2.2
391	PHM05-07B-SW-3	South Channel	07B	S	16Oct87	103300	0.5	HISLK	2.0	8.0	1.8
392	PHM05-07B-DW-1	South Channel	07B	D	16Oct87	102700	15	HISLK	1.4	1.3	0.0
393	PHM05-07B-DW-2	South Channel	07B	D	16Oct87	102800	15	HISLK	1.8	2.6	1.3
394	PHM05-07B-DW-3	South Channel	07B	D	16Oct87	102900	15	HISLK	0.2	2.4	1.3
395	PHM05-09A-SW-1	South Channel	09A	S	16Oct87	104400	0.5	HISLK	4.1	12.0	3.2
396	PHM05-09A-SW-2	South Channel	09A	S	16Oct87	104500	0.5	HISLK	3.5	6.9	3.0
397	PHM05-09A-SW-3	South Channel	09A	S	16Oct87	104600	0.5	HISLK	3.1	5.0	1.3
398	PHM05-09A-DW-1	South Channel	09A	D	16Oct87	104000	13	HISLK	1.6	2.6	2.3
399	PHM05-09A-DW-2	South Channel	09A	D	16Oct87	104100	13	HISLK	1.1	2.6	2.3
400	PHM05-09A-DW-3	South Channel	09A	D	16Oct87	104200	13	HISLK	2.2	2.4	3.8
401	PHM05-07 -SW-1	Drydock #2	07	S	16Oct87	103200	0.5	HISLK	3.1	12.0	2.2
402	PHM05-07 -SW-2	Drydock #2	07	S	16Oct87	103300	0.5	HISLK	4.7	9.1	1.8
403	PHM05-07 -SW-3	Drydock #2	07	S	16Oct87	103400	0.5	HISLK	2.8	8.8	7.8
404	PHM05-07 -DW-1	Drydock #2	07	D	16Oct87	103500	16	HISLK	0.9	3.5	3.7
405	PHM05-07 -DW-2	Drydock #2	07	D	16Oct87	103600	16	HISLK	4.9	5.9	11.0
406	PHM05-07 -DW-3	Drydock #2	07	D	16Oct87	103700	16	HISLK	2.1	3.9	3.3
407	PHM05-09B-SW-1	Southeast Loch	09B	S	16Oct87	112400	0.5	HISLK	3.3	6.7	1.5
408	PHM05-09B-SW-2	Southeast Loch	09B	S	16Oct87	112500	0.5	HISLK	1.6	4.5	1.0
409	PHM05-09B-SW-3	Southeast Loch	09B	S	16Oct87	112600	0.5	HISLK	2.0	5.0	1.0
410	PHM05-09B-DW-1	Southeast Loch	09B	D	16Oct87	112100	13	HISLK	1.6	3.5	1.5
411	PHM05-09B-DW-2	Southeast Loch	09B	D	16Oct87	112200	13	HISLK	1.0	1.4	.
412	PHM05-09B-DW-3	Southeast Loch	09B	D	16Oct87	112300	13	HISLK	1.2	2.2	1.2
413	PHM05-10 -SW-1	Southeast Loch	10	S	16Oct87	111800	0.5	HISLK	2.9	15.0	4.4
414	PHM05-10 -SW-2	Southeast Loch	10	S	16Oct87	111900	0.5	HISLK	5.2	13.0	3.8
415	PHM05-10 -SW-3	Southeast Loch	10	S	16Oct87	112000	0.5	HISLK	3.9	11.0	2.1
416	PHM05-10 -DW-1	Southeast Loch	10	D	16Oct87	111500	13	HISLK	1.9	5.9	1.7
417	PHM05-10 -DW-2	Southeast Loch	10	D	16Oct87	111600	13	HISLK	2.7	4.1	2.0
418	PHM05-10 -DW-3	Southeast Loch	10	D	16Oct87	111700	13	HISLK	2.0	3.4	2.2
419	PHM05-11A-SW-1	Southeast Loch	11A	S	16Oct87	110300	0.5	HISLK	5.9	18.0	4.2
420	PHM05-11A-SW-2	Southeast Loch	11A	S	16Oct87	110400	0.5	HISLK	5.3	18.0	2.8
421	PHM05-11A-SW-3	Southeast Loch	11A	S	16Oct87	110500	0.5	HISLK	3.9	18.0	2.1
422	PHM05-11A-DW-1	Southeast Loch	11A	D	16Oct87	110000	13	HISLK	3.2	3.4	1.9
423	PHM05-11A-DW-2	Southeast Loch	11A	D	16Oct87	110100	13	HISLK	1.5	2.9	1.3
424	PHM05-11A-DW-3	Southeast Loch	11A	D	16Oct87	110200	13	HISLK	1.7	3.4	1.0
425	PHM05-18A-SW-1	North Channel	18A	S	16Oct87	101600	0.5	HISLK	2.0	7.0	2.1
426	PHM05-18A-SW-2	North Channel	18A	S	16Oct87	101700	0.5	HISLK	2.5	6.5	2.1

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
427	PHM05-18A-SW-3	North Channel	18A	S	16Oct87	101800	0.5	HISLK	7.6	9.4	2.3
428	PHM05-18A-DW-1	North Channel	18A	D	16Oct87	101300	13	HISLK	0.6	1.9	0.4
429	PHM05-18A-DW-2	North Channel	18A	D	16Oct87	101400	13	HISLK	0.9	2.4	1.0
430	PHM05-18A-DW-3	North Channel	18A	D	16Oct87	101500	13	HISLK	0.2	1.4	0.4
431	PHM05-20 -SW-1	North Channel	20	S	16Oct87	113500	0.5	HISLK	2.0	2.9	1.1
432	PHM05-20 -SW-2	North Channel	20	S	16Oct87	113600	0.5	HISLK	0.3	1.9	0.7
433	PHM05-20 -SW-3	North Channel	20	S	16Oct87	113700	0.5	HISLK	2.5	3.8	0.8
434	PHM05-20 -DW-1	North Channel	20	D	16Oct87	113800	13	HISLK	1.1	2.4	2.8
435	PHM05-20 -DW-2	North Channel	20	D	16Oct87	113900	13	HISLK	0.3	1.0	0.6
436	PHM05-20 -DW-3	North Channel	20	D	16Oct87	114000	13	HISLK	0.6	1.1	0.0
437	PHM05-21 -SW-1	North Channel	21	S	16Oct87	122100	0.5	HISLK	.	6.5	2.2
438	PHM05-21 -SW-2	North Channel	21	S	16Oct87	122200	0.5	HISLK	3.4	8.3	4.2
439	PHM05-21 -SW-3	North Channel	21	S	16Oct87	122300	0.5	HISLK	1.8	4.5	2.2
440	PHM05-21 -DW-1	North Channel	21	D	16Oct87	121800	13.5	HISLK	0.3	1.6	0.4
441	PHM05-21 -DW-2	North Channel	21	D	16Oct87	121900	13.5	HISLK	0.7	1.6	0.5
442	PHM05-21 -DW-3	North Channel	21	D	16Oct87	122000	13.5	HISLK	1.0	1.9	0.9
443	PHM05-19 -SW-1	Middle Loch	19	S	15Oct87	165800	0.5	OUTGO	0.2	3.9	0.0
444	PHM05-19 -SW-2	Middle Loch	19	S	15Oct87	165900	0.5	OUTGO	0.2	3.3	0.0
445	PHM05-19 -SW-3	Middle Loch	19	S	15Oct87	170000	0.5	OUTGO	0.8	3.3	0.0
446	PHM05-19 -DW-1	Middle Loch	19	D	15Oct87	165400	7	OUTGO	2.8	5.4	0.0
447	PHM05-19 -DW-2	Middle Loch	19	D	15Oct87	165500	7	OUTGO	2.1	5.4	0.4
448	PHM05-19 -DW-3	Middle Loch	19	D	15Oct87	165600	7	OUTGO	1.8	3.5	0.4
449	PHM05-19A-SW-1	Middle Loch	19A	S	15Oct87	170900	0.5	OUTGO	0.2	4.3	0.4
450	PHM05-19A-SW-2	Middle Loch	19A	S	15Oct87	171000	0.5	OUTGO	2.8	7.1	1.6
451	PHM05-19A-SW-3	Middle Loch	19A	S	15Oct87	171100	0.5	OUTGO	0.9	3.6	0.4
452	PHM05-19A-DW-1	Middle Loch	19A	D	15Oct87	170600	11	OUTGO	0.2	3.0	2.2
453	PHM05-19A-DW-2	Middle Loch	19A	D	15Oct87	170700	11	OUTGO	0.2	1.6	0.4
454	PHM05-19A-DW-3	Middle Loch	19A	D	15Oct87	170800	11	OUTGO	2.8	4.0	0.8
455	PHM05-14 -SW-1	Rainbow Marina	14	S	16Oct87	122800	0.5	HISLK	12.0	26.0	38.0
456	PHM05-14 -SW-2	Rainbow Marina	14	S	16Oct87	122900	0.5	HISLK	7.3	25.0	19.0
457	PHM05-14 -SW-3	Rainbow Marina	14	S	16Oct87	123000	0.5	HISLK	5.7	14.0	22.0
458	PHM05-14 -DW-1	Rainbow Marina	14	D	16Oct87	123100	6	HISLK	2.4	8.1	4.1
459	PHM05-14 -DW-2	Rainbow Marina	14	D	16Oct87	123200	6	HISLK	2.3	7.6	2.3
460	PHM05-14 -DW-3	Rainbow Marina	14	D	16Oct87	123300	6	HISLK	2.3	8.6	2.3
461	PHM05-16 -SW-1	Waiau Shoal	16	S	15Oct87	173300	0.5	OUTGO	1.7	5.8	2.5
462	PHM05-16 -SW-2	Waiau Shoal	16	S	15Oct87	173400	0.5	OUTGO	2.2	4.3	1.7
463	PHM05-16 -SW-3	Waiau Shoal	16	S	15Oct87	173500	0.5	OUTGO	3.5	6.1	1.8
464	PHM05-16 -DW-1	Waiau Shoal	16	D	15Oct87	173000	4	OUTGO	0.9	3.7	2.5
465	PHM05-16 -DW-2	Waiau Shoal	16	D	15Oct87	173100	4	OUTGO	0.9	3.7	1.1
466	PHM05-16 -DW-3	Waiau Shoal	16	D	15Oct87	173200	4	OUTGO	2.0	3.7	1.5
467	PHM05-05B-SW-1	Drydock #4	05B	S	15Oct87	150300	0.5	OUTGO	2.9	3.4	0.8
468	PHM05-05B-SW-2	Drydock #4	05B	S	15Oct87	150400	0.5	OUTGO	1.5	6.0	1.4
469	PHM05-05B-SW-3	Drydock #4	05B	S	15Oct87	150500	0.5	OUTGO	2.4	5.1	3.3
470	PHM05-05B-DW-1	Drydock #4	05B	D	15Oct87	145900	16.5	OUTGO	0.7	0.7	0.4
471	PHM05-05B-DW-2	Drydock #4	05B	D	15Oct87	150000	16.5	OUTGO	0.4	0.6	0.3
472	PHM05-05B-DW-3	Drydock #4	05B	D	15Oct87	150100	16.5	OUTGO	1.1	1.0	0.5
473	PHM06-01 -SW-1	Entrance Channel	01	S	20Jan88	124200	0.5	LOSLK	5.5	2.2	1.5
474	PHM06-01 -SW-2	Entrance Channel	01	S	20Jan88	124300	0.5	LOSLK	1.4	2.9	6.7
475	PHM06-01 -SW-3	Entrance Channel	01	S	20Jan88	124400	0.5	LOSLK	5.1	2.8	2.1
476	PHM06-01 -DW-1	Entrance Channel	01	D	20Jan88	124500	11.5	LOSLK	1.9	4.9	1.6
477	PHM06-01 -DW-2	Entrance Channel	01	D	20Jan88	124600	11.5	LOSLK	2.8	5.8	1.0
478	PHM06-01 -DW-3	Entrance Channel	01	D	20Jan88	124700	11.5	LOSLK	0.9	0.0	0.0
479	PHM06-05C-SW-1	Entrance Channel	05C	S	20Jan88	130100	0.5	LOSLK	2.4	5.7	1.8
480	PHM06-05C-SW-2	Entrance Channel	05C	S	20Jan88	120100	0.5	LOSLK	2.8	6.4	2.0
481	PHM06-05C-SW-3	Entrance Channel	05C	S	20Jan88	130300	0.5	LOSLK	3.5	5.9	2.7
482	PHM06-05C-DW-1	Entrance Channel	05C	D	20Jan88	130400	15	LOSLK	1.5	3.6	1.3
483	PHM06-05C-DW-2	Entrance Channel	05C	D	20Jan88	130500	15	LOSLK	3.7	6.4	1.8
484	PHM06-05C-DW-3	Entrance Channel	05C	D	20Jan88	130600	15	LOSLK	1.7	3.5	2.2
485	PHM06-03A-SW-1	West Loch	03A	S	19Jan88	111400	0.5	LOSLK	2.0	1.0	0.0
486	PHM06-03A-SW-2	West Loch	03A	S	19Jan88	111500	0.5	LOSLK	3.7	1.8	0.0
487	PHM06-03A-SW-3	West Loch	03A	S	19Jan88	111600	0.5	LOSLK	2.3	0.4	0.4
488	PHM06-03A-DW-1	West Loch	03A	D	19Jan88	110900	5.5	LOSLK	1.5	0.7	0.4
489	PHM06-03A-DW-2	West Loch	03A	D	19Jan88	111000	5.5	LOSLK	0.5	1.6	0.4
490	PHM06-03A-DW-3	West Loch	03A	D	19Jan88	111100	5.5	LOSLK	0.5	1.0	0.5
491	PHM06-03D-SW-1	West Loch	03D	S	19Jan88	113700	0.5	LOSLK	4.1	0.9	0.6
492	PHM06-03D-SW-2	West Loch	03D	S	19Jan88	113800	0.5	LOSLK	1.2	0.5	0.0
493	PHM06-03D-SW-3	West Loch	03D	S	19Jan88	113900	0.5	LOSLK	4.0	5.1	10.0
494	PHM06-03D-DW-1	West Loch	03D	D	19Jan88	114000	15.5	LOSLK	1.9	0.7	0.5
495	PHM06-03D-DW-2	West Loch	03D	D	19Jan88	114100	15.5	LOSLK	0.9	0.8	1.4
496	PHM06-03D-DW-3	West Loch	03D	D	19Jan88	114200	15.5	LOSLK	1.8	1.4	1.5
497	PHM06-07B-SW-1	South Channel	07B	S	20Jan88	134400	0.5	INCMG	3.3	4.3	3.0

Pearl Harbor Organotin Monitoring
Water

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
498	PHM06-07B-SW-2	South Channel	07B	S	20Jan88	124500	0.5	INCMG	3.8	5.3	2.0
499	PHM06-07B-SW-3	South Channel	07B	S	20Jan88	134600	0.5	INCMG	1.4	1.2	3.0
500	PHM06-07B-DW-1	South Channel	07B	D	20Jan88	134100	15.5	INCMG	1.5	4.0	1.5
501	PHM06-07B-DW-2	South Channel	07B	D	20Jan88	134200	15.5	INCMG	2.9	7.5	5.3
502	PHM06-07B-DW-3	South Channel	07B	D	20Jan88	134300	15.5	INCMG	2.1	4.6	1.9
503	PHM06-09A-SW-1	South Channel	09A	S	20Jan88	134700	0.5	INCMG	3.0	7.4	2.7
504	PHM06-09A-SW-2	South Channel	09A	S	20Jan88	124800	0.5	INCMG	4.4	4.8	4.9
505	PHM06-09A-SW-3	South Channel	09A	S	20Jan88	134900	0.5	INCMG	4.2	11.0	5.2
506	PHM06-09A-DW-1	South Channel	09A	D	20Jan88	135000	12.5	INCMG	2.5	2.1	2.0
507	PHM06-09A-DW-2	South Channel	09A	D	20Jan88	135100	12.5	INCMG	1.6	3.2	1.5
508	PHM06-09A-DW-3	South Channel	09A	D	20Jan88	135200	12.5	INCMG	1.7	2.3	2.1
509	PHM06-07 -SW-1	Drydock #2	07	S	20Jan88	131900	0.5	LOSLK	4.5	4.8	2.0
510	PHM06-07 -SW-2	Drydock #2	07	S	20Jan88	122000	0.5	LOSLK	5.8	4.1	2.0
511	PHM06-07 -SW-3	Drydock #2	07	S	20Jan88	132100	0.5	LOSLK	4.0	4.5	2.4
512	PHM06-07 -DW-1	Drydock #2	07	D	20Jan88	132200	15	LOSLK	3.0	4.1	5.6
513	PHM06-07 -DW-2	Drydock #2	07	D	20Jan88	132300	15	LOSLK	3.1	6.1	4.6
514	PHM06-07 -DW-3	Drydock #2	07	D	20Jan88	132400	15	LOSLK	2.2	4.2	5.9
515	PHM06-09B-SW-1	Southeast Loch	09B	S	20Jan88	135600	0.5	INCMG	7.9	29.0	5.7
516	PHM06-09B-SW-2	Southeast Loch	09B	S	20Jan88	125700	0.5	INCMG	13.0	19.0	10.0
517	PHM06-09B-SW-3	Southeast Loch	09B	S	20Jan88	135800	0.5	INCMG	8.2	32.0	8.8
518	PHM06-09B-DW-1	Southeast Loch	09B	D	20Jan88	135900	12.5	INCMG	2.5	3.5	2.1
519	PHM06-09B-DW-2	Southeast Loch	09B	D	20Jan88	140000	12.5	INCMG	2.8	2.1	3.2
520	PHM06-09B-DW-3	Southeast Loch	09B	D	20Jan88	140100	12.5	INCMG	2.8	3.0	2.7
521	PHM06-10 -SW-1	Southeast Loch	10	S	20Jan88	141100	0.5	INCMG	6.5	23.0	11.0
522	PHM06-10 -SW-2	Southeast Loch	10	S	20Jan88	141200	0.5	INCMG	4.2	11.0	4 1
523	PHM06-10 -SW-3	Southeast Loch	10	S	20Jan88	141300	0.5	INCMG	4.0	17.0	8.3
524	PHM06-10 -DW-1	Southeast Loch	10	D	20Jan88	141400	12.5	INCMG	2.3	5.2	2.3
525	PHM06-10 -DW-2	Southeast Loch	10	D	20Jan88	141500	12.5	INCMG	2.0	5.0	3.4
526	PHM06-10 -DW-3	Southeast Loch	10	D	20Jan88	141600	12.5	INCMG	2.2	3.9	2.5
527	PHM06-11A-SW-1	Southeast Loch	11A	S	20Jan88	142000	0.5	INCMG	12.0	25.0	17.0
528	PHM06-11A-SW-2	Southeast Loch	11A	S	20Jan88	142100	0.5	INCMG	3.1	5.6	7.9
529	PHM06-11A-SW-3	Southeast Loch	11A	S	20Jan88	142200	0.5	INCMG	2.5	7.6	10.0
530	PHM06-11A-DW-1	Southeast Loch	11A	D	20Jan88	141700	13.5	INCMG	2.4	2.0	3.0
531	PHM06-11A-DW-2	Southeast Loch	11A	D	20Jan88	141800	13.5	INCMG	2.5	5.3	3.5
532	PHM06-11A-DW-3	Southeast Loch	11A	D	20Jan88	141900	13.5	INCMG	2.6	1.9	3.0
533	PHM06-18A-SW-1	North Channel	18A	S	20Jan88	115200	0.5	LOSLK	3.7	4.7	1.5
534	PHM06-18A-SW-2	North Channel	18A	S	20Jan88	115300	0.5	LOSLK	2.8	9.5	2.2
535	PHM06-18A-SW-3	North Channel	18A	S	20Jan88	115400	0.5	LOSLK	2.9	3.5	2.4
536	PHM06-18A-DW-1	North Channel	18A	D	20Jan88	115500	12.5	LOSLK	3.1	1.0	0.6
537	PHM06-18A-DW-2	North Channel	18A	D	20Jan88	115600	12.5	LOSLK	3.2	1.3	1.2
538	PHM06-18A-DW-3	North Channel	18A	D	20Jan88	115700	12.5	LOSLK	2.3	4.2	1.8
539	PHM06-20 -SW-1	North Channel	20	S	20Jan88	120400	0.5	LOSLK	12.0	1.5	1.1
540	PHM06-20 -SW-2	North Channel	20	S	20Jan88	120500	0.5	LOSLK	1.2	0.0	1.5
541	PHM06-20 -SW-3	North Channel	20	S	20Jan88	120600	0.5	LOSLK	5.4	0.8	0.6
542	PHM06-20 -DW-1	North Channel	20	D	20Jan88	120800	13.5	LOSLK	3.1	0.0	0.5
543	PHM06-20 -DW-2	North Channel	20	D	20Jan88	120900	13.5	LOSLK	1.3	0.2	0.8
544	PHM06-20 -DW-3	North Channel	20	D	20Jan88	121000	13.5	LOSLK	2.0	6.0	1.3
545	PHM06-21 -SW-1	North Channel	21	S	20Jan88	111400	0.5	OUTGO	4.5	5.7	3.3
546	PHM06-21 -SW-2	North Channel	21	S	20Jan88	111500	0.5	OUTGO	2.6	4.1	2.6
547	PHM06-21 -SW-3	North Channel	21	S	20Jan88	111600	0.5	OUTGO	3.2	5.2	3.1
548	PHM06-21 -DW-1	North Channel	21	D	20Jan88	111100	13.5	OUTGO	2.2	3.3	21.0
549	PHM06-21 -DW-2	North Channel	21	D	20Jan88	111200	13.5	OUTGO	0.6	1.5	0.6
550	PHM06-21 -DW-3	North Channel	21	D	20Jan88	111300	13.5	OUTGO	1.6	1.4	0.8
551	PHM06-19 -SW-1	Middle Loch	19	S	20Jan88	112800	0.5	OUTGO	2.0	1.7	0.7
552	PHM06-19 -SW-2	Middle Loch	19	S	20Jan88	112900	0.5	OUTGO	0.3	1.7	0.4
553	PHM06-19 -SW-3	Middle Loch	19	S	20Jan88	113000	0.5	OUTGO	0.6	2.7	0.8
554	PHM06-19 -DW-1	Middle Loch	19	D	20Jan88	113100	6.5	OUTGO	1.4	2.1	0.7
555	PHM06-19 -DW-2	Middle Loch	19	D	20Jan88	113200	6.5	OUTGO	0.5	1.3	0.5
556	PHM06-19 -DW-3	Middle Loch	19	D	20Jan88	113300	6.5	OUTGO	0.7	1.5	0.5
557	PHM06-19A-SW-1	Middle Loch	19A	S	20Jan88	114100	0.5	LOSLK	3.4	1.4	0.2
558	PHM06-19A-SW-2	Middle Loch	19A	S	20Jan88	114200	0.5	LOSLK	1.9	1.4	0.8
559	PHM06-19A-SW-3	Middle Loch	19A	S	20Jan88	114300	0.5	LOSLK	2.3	2.3	2.4
560	PHM06-19A-DW-1	Middle Loch	19A	D	20Jan88	114400	11	LOSLK	3.7	1.0	0.1
561	PHM06-19A-DW-2	Middle Loch	19A	D	20Jan88	114500	11	LOSLK	1.0	1.2	1.6
562	PHM06-19A-DW-3	Middle Loch	19A	D	20Jan88	114600	11	LOSLK	2.4	0.3	0.2
563	PHM06-14 -SW-1	Rainbow Marina	14	S	20Jan88	145700	0.5	INCMG	4.8	13.0	23.0
564	PHM06-14 -SW-2	Rainbow Marina	14	S	20Jan88	145800	0.5	INCMG	5.8	8.2	12.0
565	PHM06-14 -SW-3	Rainbow Marina	14	S	20Jan88	145900	0.5	INCMG	11.0	22.0	39.0
566	PHM06-14 -DW-1	Rainbow Marina	14	D	20Jan88	150000	5.5	INCMG	2.8	7.9	3.8
567	PHM06-14 -DW-2	Rainbow Marina	14	D	20Jan88	150100	5.5	INCMG	2.4	4.0	2.6
568	PHM06-14 -DW-3	Rainbow Marina	14	D	20Jan88	150200	5.5	INCMG	4.1	9.0	2.3

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
569	PHM06-16 -SW-1	Waiau Shoal	16	S	20Jan88	104400	0.5	OUTGO	3.2	5.7	3.2
570	PHM06-16 -SW-2	Waiau Shoal	16	S	20Jan88	104500	0.5	OUTGO	1.8	7.0	7.4
571	PHM06-16 -SW-3	Waiau Shoal	16	S	20Jan88	104600	0.5	OUTGO	1.2	6.3	3.2
572	PHM06-16 -DW-1	Waiau Shoal	16	D	20Jan88	104100	2.5	OUTGO	3.5	4.7	2.9
573	PHM06-16 -DW-2	Waiau Shoal	16	D	20Jan88	104200	2.5	OUTGO	2.3	4.4	4.4
574	PHM06-16 -DW-3	Waiau Shoal	16	D	20Jan88	104300	2.5	OUTGO	3.1	4.0	3.1
575	PHM06-05B-SW-1	Drydock #4	05B	S	20Jan88	124900	0.5	LOSLK	2.7	4.1	2.1
576	PHM06-05B-SW-2	Drydock #4	05B	S	20Jan88	125000	0.5	LOSLK	1.6	1.6	1.2
577	PHM06-05B-SW-3	Drydock #4	05B	S	20Jan88	125100	0.5	LOSLK	2.0	3.2	1.1
578	PHM06-05B-DW-1	Drydock #4	05B	D	20Jan88	125700	16.5	LOSLK	3.7	4.9	1.9
579	PHM06-05B-DW-2	Drydock #4	05B	D	20Jan88	125800	16.5	LOSLK	1.2	0.9	1.6
580	PHM06-05B-DW-3	Drydock #4	05B	D	20Jan88	125900	16.5	LOSLK	0.7	4.6	1.2
581	PHM07-01 -SW-1	Entrance Channel	01	S	12Oct88	103600	0.5	LOSLK	6.8	1.7	0.0
582	PHM07-01 -DW-1	Entrance Channel	01	D	12Oct88	103800	15	LOSLK	3.5	3.0	0.5
583	PHM07-03 -SW-1	Entrance Channel	03	S	12Jan88	110200	0.5	LOSLK	0.8	4.4	2.8
584	PHM07-03 -DW-1	Entrance Channel	03	D	12Oct88	110300	15	LOSLK	7.3	2.0	0.2
585	PHM07-05C-SW-1	Entrance Channel	05C	S	12Oct88	111800	0.5	LOSLK	3.3	2.4	1.0
586	PHM07-05C-DW-1	Entrance Channel	05C	D	12Oct88	112000	15	LOSLK	1.3	1.1	1.2
587	PHM07-03A-SW-1	West Loch	03A	S	12Oct88	121400	0.5	LOSLK	11.0	0.8	0.0
588	PHM07-03A-DW-1	West Loch	03A	D	12Oct88	121600	6.5	LOSLK	1.5	0.9	1.2
589	PHM07-03C-SW-1	West Loch	03C	S	12Oct88	115800	0.5	LOSLK	1.8	0.8	0.2
590	PHM07-03C-DW-1	West Loch	03C	D	12Oct88	115900	12	LOSLK	1.8	1.3	0.2
591	PHM07-03D-SW-1	West Loch	03D	S	12Oct88	115000	0.5	LOSLK	1.8	1.1	1.6
592	PHM07-03D-DW-1	West Loch	03D	D	12Oct88	115200	15	LOSLK	2.2	0.9	0.2
593	PHM07-07B-SW-1	South Channel	07B	S	13Oct88	101000	0.5	LOSLK	1.9	2.2	1.8
594	PHM07-07B-DW-1	South Channel	07B	D	13Oct88	100800	15.5	LOSLK	1.3	0.4	0.8
595	PHM07-08C-SW-1	South Channel	08C	S	13Oct88	101500	0.5	LOSLK	2.5	2.7	2.0
596	PHM07-08C-DW-1	South Channel	08C	D	13Oct88	101300	14.5	LOSLK	1.1	0.3	0.5
597	PHM07-09A-SW-1	South Channel	09A	S	13Oct88	102800	0.5	LOSLK	3.5	1.9	2.2
598	PHM07-09A-DW-1	South Channel	09A	D	13Oct88	103000	13.5	LOSLK	5.8	1.4	0.9
599	PHM07-07 -SW-1	Drydock #2	07	S	13Oct88	095500	0.5	LOSLK	7.4	3.2	1.4
600	PHM07-07 -SW-2	Drydock #2	07	S	13Oct88	095600	0.5	LOSLK	2.0	1.8	2.3
601	PHM07-07 -SW-3	Drydock #2	07	S	13Oct88	095700	0.5	LOSLK	3.2	2.3	0.9
602	PHM07-07 -DW-1	Drydock #2	07	D	13Oct88	095000	15.5	LOSLK	5.0	2.1	2.3
603	PHM07-07 -DW-2	Drydock #2	07	D	13Oct88	095100	15.5	LOSLK	4.6	3.8	2.6
604	PHM07-07 -DW-3	Drydock #2	07	D	13Oct88	095200	15.5	LOSLK	3.2	3.1	2.1
605	PHM07-09B-SW-1	Southeast Loch	09B	S	13Oct88	105800	0.5	LOSLK	4.9	3.2	1.8
606	PHM07-09B-DW-1	Southeast Loch	09B	D	13Oct88	105700	13.5	LOSLK	3.7	2.1	0.7
607	PHM07-11A-SW-1	Southeast Loch	11A	S	13Oct88	103900	0.5	LOSLK	15.0	17.0	4.0
608	PHM07-11A-DW-1	Southeast Loch	11A	D	13Oct88	103800	13.5	LOSLK	.	.	.
609	PHM07-11B-SW-1	Southeast Loch	11B	S	13Oct88	104500	0.5	LOSLK	4.3	2.9	1.5
610	PHM07-11B-DW-1	Southeast Loch	11B	D	13Oct88	104400	12	LOSLK	5.0	2.3	0.2
611	PHM07-17A-SW-1	North Channel	17A	S	13Oct88	111500	0.5	LOSLK	3.7	2.4	1.2
612	PHM07-17A-DW-1	North Channel	17A	D	13Oct88	111300	12.5	LOSLK	2.7	1.8	0.7
613	PHM07-20 -SW-1	North Channel	20	S	12Oct88	133500	0.5	LOSLK	4.2	2.5	1.1
614	PHM07-20 -DW-1	North Channel	20	D	12Oct88	133800	13	LOSLK	3.5	1.9	1.2
615	PHM07-21 -SW-1	North Channel	21	S	13Oct88	110600	0.5	LOSLK	2.6	3.6	1.4
616	PHM07-21 -DW-1	North Channel	21	D	13Oct88	110500	13.5	LOSLK	2.4	1.0	1.2
617	PHM07-19 -SW-1	Middle Loch	19	S	12Oct88	141200	0.5	LOSLK	2.9	1.8	0.9
618	PHM07-19 -DW-1	Middle Loch	19	D	12Oct88	141400	6	LOSLK	2.8	1.2	0.0
619	PHM07-19A-SW-1	Middle Loch	19A	S	12Oct88	142800	0.5	LOSLK	2.7	3.6	1.2
620	PHM07-19A-DW-1	Middle Loch	19A	D	12Oct88	143000	12	LOSLK	2.6	1.4	0.7
621	PHM07-19B-SW-1	Middle Loch	19B	S	12Oct88	140000	0.5	LOSLK	1.5	1.4	0.7
622	PHM07-19B-DW-1	Middle Loch	19B	D	12Oct88	140200	7	LOSLK	3.4	1.5	0.9
623	PHM07-14 -SW-1	Rainbow Marina	14	S	13Oct88	113700	0.5	LOSLK	0.0	4.3	6.7
624	PHM07-14 -DW-1	Rainbow Marina	14	D	13Oct88	113600	5.5	LOSLK	2.1	5.9	11.0
625	PHM07-14B-SW-1	Rainbow Marina	14B	S	13Oct88	113200	0.5	LOSLK	3.6	8.0	21.0
626	PHM07-14B-DW-1	Rainbow Marina	14B	D	13Oct88	113000	4	LOSLK	11.0	6.3	21.0
627	PHM07-14C-SW-1	Rainbow Marina	14C	S	13Oct88	115200	0.5	LOSLK	0.0	7.4	31.0
628	PHM07-14C-DW-1	Rainbow Marina	14C	D	13Oct88	115000	5	LOSLK	2.7	4.8	4.7
629	PHM07-05B-SW-1	Drydock #4	05B	S	12Oct88	112800	0.5	LOSLK	1.[illegible]	1.3	0.4
630	PHM07-05B-SW-2	Drydock #4	05B	S	12Oct88	112900	0.5	LOSLK	2.2	1.1	1.3
631	PHM07-05B-SW-3	Drydock #4	05B	S	12Oct88	113000	0.5	LOSLK	1.7	1.3	0.9
632	PHM07-05B-DW-1	Drydock #4	05B	D	12Oct88	113100	15	LOSLK	1.2	0.1	0.4
633	PHM07-05B-DW-2	Drydock #4	05B	D	12Oct88	113200	15	LOSLK	2.3	1.2	0.0
634	PHM07-05B-DW-3	Drydock #4	05B	D	12Oct88	113300	15	LOSLK	1.3	0.6	1.0
635	PHM08-01 -SW-1	Entrance Channel	01	S	16Jan89	101300	0.5	HISLK	4.0	1.2	1.8
636	PHM08-01 -DW-1	Entrance Channel	01	D	16Jan89	101200	14	HISLK	2.9	1.8	0.4
637	PHM08-03 -SW-1	Entrance Channel	03	S	16Jan89	104000	0.5	HISLK	3.8	0.9	0.7
638	PHM08-03 -DW-1	Entrance Channel	03	D	16Jan89	103800	15.5	HISLK	2.4	1.1	0.2
639	PHM08-05C-SW-1	Entrance Channel	05C	S	16Jan89	130600	0.5	HISLK	3.8	2.2	1.2

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
640	PHM08-05C-DW-1	Entrance Channel	05C	D	16Jan89	130500	15.5	HISLK	3.3	1.5	1.5
641	PHM08-03A-SW-1	West Loch	03A	S	16Jan89	112000	0.5	HISLK	4.7	1.5	0.3
642	PHM08-03A-DW-1	West Loch	03A	D	16Jan89	111800	6.5	HISLK	2.2	1.2	0.0
643	PHM08-03C-SW-1	West Loch	03C	S	16Jan89	115600	0.5	HISLK	0.9	0.7	0.0
644	PHM08-03C-DW-1	West Loch	03C	D	16Jan89	115500	10	HISLK	4.7	1.9	0.6
645	PHM08-03D-SW-1	West Loch	03D	S	16Jan89	110200	0.5	HISLK	1.3	0.9	0.7
646	PHM08-03D-DW-1	West Loch	03D	D	16Jan89	110100	16	HISLK	2.5	1.0	0.6
647	PHM08-07B-SW-1	South Channel	07B	S	17Jan89	115800	0.5	HISLK	3.8	3.7	1.7
648	PHM08-07B-DW-1	South Channel	07B	D	17Jan89	115700	15.5	HISLK	3.3	2.5	1.4
649	PHM08-08C-SW-1	South Channel	08C	S	17Jan89	114500	0.5	HISLK	5.5	4.4	3.4
650	PHM08-08C-DW-1	South Channel	08C	D	17Jan89	114400	13.5	HISLK	1.4	3.2	1.6
651	PHM08-09A-SW-1	South Channel	09A	S	17Jan89	113200	0.5	HISLK	3.3	3.4	3.1
652	PHM08-09A-DW-1	South Channel	09A	D	17Jan89	113100	13	HISLK	2.2	1.3	1.0
653	PHM08-07 -SW-1	Drydock #2	07	S	17Jan89	125200	0.5	HISLK	4.3	3.3	1.8
654	PHM08-07 -SW-2	Drydock #2	07	S	17Jan89	125400	0.5	HISLK	3.1	3.5	0.4
655	PHM08-07 -SW-3	Drydock #2	07	S	17Jan89	125600	0.5	HISLK	2.7	3.7	1.0
656	PHM08-07 -DW-1	Drydock #2	07	D	17Jan89	125000	15.5	HISLK	1.4	1.0	1.4
657	PHM08-07 -DW-2	Drydock #2	07	D	17Jan89	125300	16.5	HISLK	3.1	2.4	1.3
658	PHM08-07 -DW-3	Drydock #2	07	D	17Jan89	125500	16.5	HISLK	2.9	2.7	2.0
659	PHM08-09B-SW-1	Southeast Loch	09B	S	17Jan89	112100	0.5	HISLK	4.6	4.6	2.6
660	PHM08-09B-DW-1	Southeast Loch	09B	D	17Jan89	112000	13.5	HISLK	2.9	2.5	1.6
661	PHM08-11A-SW-1	Southeast Loch	11A	S	17Jan89	105600	0.5	HISLK	7.6	8.7	12.0
662	PHM08-11A-DW-1	Southeast Loch	11A	D	17Jan89	105400	13	HISLK	4.2	4.7	6.4
663	PHM08-11B-SW-1	Southeast Loch	11B	S	17Jan89	111200	0.5	HISLK	7.5	5.2	6.3
664	PHM08-11B-DW-1	Southeast Loch	11B	D	17Jan89	111100	11.5	HISLK	2.5	2.3	2.6
665	PHM08-17A-SW-1	North Channel	17A	S	17Jan89	134700	0.5	HISLK	6.0	4.1	2.4
666	PHM08-17A-DW-1	North Channel	17A	D	17Jan89	134600	13	HISLK	2.7	1.0	0.0
667	PHM08-20 -SW-1	North Channel	20	S	17Jan89	133500	0.5	HISLK	2.6	5.0	1.4
668	PHM08-20 -DW-1	North Channel	20	D	17Jan89	133300	14	HISLK	1.6	1.5	0.7
669	PHM08-21 -SW-1	North Channel	21	S	17Jan89	143600	0.5	HISLK	2.8	5.8	2.0
670	PHM08-21 -DW-1	North Channel	21	D	17Jan89	143500	13	HISLK	2.1	2.2	0.6
671	PHM08-19 -SW-1	Middle Loch	19	S	16Jan89	134000	0.5	HISLK	2.3	0.6	0.2
672	PHM08-19 -DW-1	Middle Loch	19	D	16Jan89	133900	7	HISLK	3.3	1.9	0.6
673	PHM08-19A-SW-1	Middle Loch	19A	S	16Jan89	135900	0.5	HISLK	2.7	1.5	0.6
674	PHM08-19A-DW-1	Middle Loch	19A	D	16Jan89	135800	12	HISLK	2.5	1.3	0.2
675	PHM08-19B-SW-1	Middle Loch	19B	S	16Jan89	132500	0.5	HISLK	5.4	2.1	1.1
676	PHM08-19B-DW-1	Middle Loch	19B	D	16Jan89	132200	6.5	HISLK	3.4	1.9	0.6
677	PHM08-14 -SW-1	Rainbow Marina	14	S	17Jan89	102500	0.5	HISLK	.	.	.
678	PHM08-14 -DW-1	Rainbow Marina	14	D	17Jan89	102600	5.5	HISLK	2.2	4.2	2.3
679	PHM08-14B-SW-1	Rainbow Marina	14B	S	17Jan89	101400	0.5	HISLK	3.1	6.0	3.0
680	PHM08-14B-DW-1	Rainbow Marina	14B	D	17Jan89	101100	4.5	HISLK	4.6	5.5	5.5
681	PHM08-14C-SW-1	Rainbow Marina	14C	S	17Jan89	104000	0.5	HISLK	4.9	6.4	14.0
682	PHM08-14C-DW-1	Rainbow Marina	14C	D	17Jan89	103900	4.5	HISLK	2.8	3.6	4.3
683	PHM08-16 -SW-1	Waiau Shoal	16	S	17Jan89	140000	0.5	HISLK	4.1	4.3	1.9
684	PHM08-16 -SW-2	Waiau Shoal	16	S	17Jan89	141300	0.5	HISLK	0.9	3.6	2.4
685	PHM08-16 -SW-3	Waiau Shoal	16	S	17Jan89	141800	0.5	HISLK	1.4	3.9	2.7
686	PHM08-16 -DW-1	Waiau Shoal	16	D	17Jan89	140300	2.5	HISLK	2.0	4.9	2.7
687	PHM08-16 -DW-2	Waiau Shoal	16	D	17Jan89	141300	4	HISLK	1.1	3.3	1.9
688	PHM08-16 -DW-3	Waiau Shoal	16	D	17Jan89	141700	3	HISLK	0.9	3.8	2.0
689	PHM08-05B-SW-1	Drydock #4	05B	S	16Jan89	124000	0.5	HISLK	8.1	1.1	1.2
690	PHM08-05B-SW-2	Drydock #4	05B	S	16Jan89	124200	0.5	HISLK	2.6	1.8	0.7
691	PHM08-05B-SW-3	Drydock #4	05B	S	16Jan89	124400	0.5	HISLK	2.2	2.3	0.4
692	PHM08-05B-DW-1	Drydock #4	05B	D	16Jan89	123900	16	HISLK	2.2	2.3	1.4
693	PHM08-05B-DW-2	Drydock #4	05B	D	16Jan89	124100	17	HISLK	1.6	1.4	0.6
694	PHM08-05B-DW-3	Drydock #4	05B	D	16Jan89	124300	17	HISLK	1.7	2.1	1.0
695	PHM09-01 -SW-1	Entrance Channel	01	S	12Apr89	102900	0.5	INCMG	.	2.7	2.5
696	PHM09-01 -DW-1	Entrance Channel	01	D	12Apr89	103000	10.5	INCMG	8.8	1.4	0.5
697	PHM09-03 -SW-1	Entrance Channel	03	S	12Apr89	103500	0.5	INCMG	2.0	1.0	0.2
698	PHM09-03 -DW-1	Entrance Channel	03	D	12Apr89	103800	18	INCMG	3.2	1.5	0.1
699	PHM09-05C-SW-1	Entrance Channel	05C	S	12Apr89	104500	0.5	INCMG	3.8	1.7	1.4
700	PHM09-05C-DW-1	Entrance Channel	05C	D	12Apr89	104700	16	INCMG	2.0	1.1	0.5
701	PHM09-03A-SW-1	West Loch	03A	S	12Apr89	112200	0.5	INCMG	1.4	1.4	0.0
702	PHM09-03A-DW-1	West Loch	03A	D	12Apr89	112300	4.5	INCMG	2.6	1.5	0.0
703	PHM09-03C-SW-1	West Loch	03C	S	12Apr89	111800	0.5	INCMG	7.1	1.9	0.1
704	PHM09-03C-DW-1	West Loch	03C	D	12Apr89	111600	10.5	INCMG	8.0	1.5	1.7
705	PHM09-03D-SW-1	West Loch	03D	S	12Apr89	110500	0.5	INCMG	1.8	1.1	0.0
706	PHM09-03D-DW-1	West Loch	03D	D	12Apr89	110600	13.5	INCMG	3.0	1.8	0.0
707	PHM09-07B-SW-1	South Channel	07B	S	12Apr89	115700	0.5	INCMG	2.4	2.1	2.4
708	PHM09-07B-DW-1	South Channel	07B	D	12Apr89	115900	17	INCMG	2.6	1.3	0.7
709	PHM09-08C-SW-1	South Channel	08C	S	12Apr89	120300	0.5	INCMG	1.8	2.6	3.6
710	PHM09-08C-DW-1	South Channel	08C	D	12Apr89	120500	14	INCMG	1.4	1.5	1.1

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
711	PHM09-09A-SW-1	South Channel	09A	S	12Apr89	121000	0.5	INCMG	3.2	3.4	2.8
712	PHM09-09A-DW-1	South Channel	09A	D	12Apr89	121200	14	INCMG	1.6	1.8	0.8
713	PHM09-07 -SW-1	Drydock #2	07	S	12Apr89	114000	0.5	INCMG	2.6	2.4	1.1
714	PHM09-07 -SW-2	Drydock #2	07	S	12Apr89	114500	0.5	INCMG	2.2	1.8	0.7
715	PHM09-07 -SW-3	Drydock #2	07	S	12Apr89	115200	0.5	INCMG	2.6	1.8	1.1
716	PHM09-07 -DW-1	Drydock #2	07	D	12Apr89	114200	16	INCMG	2.8	2.4	1.2
717	PHM09-07 -DW-2	Drydock #2	07	D	12Apr89	115000	16	INCMG	1.8	2.0	1.6
718	PHM09-07 -DW-3	Drydock #2	07	D	12Apr89	115300	16	INCMG	4.8	1.0	0.8
719	PHM09-09B-SW-1	Southeast Loch	09B	S	13Apr89	111100	0.5	INCMG	2.4	3.6	3.6
720	PHM09-09B-DW-1	Southeast Loch	09B	D	13Apr89	111000	13	INCMG	1.7	1.4	1.2
721	PHM09-11A-SW-1	Southeast Loch	11A	S	13Apr89	110100	0.5	INCMG	6.4	5.8	7.2
722	PHM09-11A-DW-1	Southeast Loch	11A	D	13Apr89	110000	14	INCMG	2.6	2.4	2.2
723	PHM09-11B-SW-1	Southeast Loch	11B	S	13Apr89	110400	0.5	INCMG	.	5.6	2.8
724	PHM09-11B-DW-1	Southeast Loch	11B	D	13Apr89	110300	12	INCMG	1.8	2.4	0.8
725	PHM09-17A-SW-1	North Channel	17A	S	13Apr89	094500	0.5	INCMG	1.3	2.0	0.6
726	PHM09-17A-DW-1	North Channel	17A	D	13Apr89	094400	13	INCMG	1.4	1.8	0.4
727	PHM09-20 -SW-1	North Channel	20	S	13Apr89	101800	0.5	INCMG	2.0	3.4	1.1
728	PHM09-20 -DW-1	North Channel	20	D	13Apr89	101900	13.5	INCMG	3.2	1.2	0.5
729	PHM09-21 -SW-1	North Channel	21	S	13Apr89	093500	0.5	INCMG	2.2	3.6	1.6
730	PHM09-21 -DW-1	North Channel	21	D	13Apr89	093700	13	INCMG	.	0.3	0.0
731	PHM09-19 -SW-1	Middle Loch	19	S	13Apr89	100000	0.5	INCMG	5.0	3.4	1.4
732	PHM09-19 -DW-1	Middle Loch	19	D	13Apr89	100200	7	INCMG	2.0	2.4	0.8
733	PHM09-19A-SW-1	Middle Loch	19A	S	13Apr89	101200	0.5	INCMG	2.4	2.6	1.7
734	PHM09-19A-DW-1	Middle Loch	19A	D	13Apr89	101100	12	INCMG	1.9	1.0	0.1
735	PHM09-19B-SW-1	Middle Loch	19B	S	13Apr89	095400	0.5	INCMG	3.0	2.0	2.0
736	PHM09-19B-DW-1	Middle Loch	19B	D	13Apr89	095300	7	INCMG	1.8	1.3	0.1
737	PHM09-14 -SW-1	Rainbow Marina	14	S	13Apr89	112500	0.5	INCMG	6.8	7.2	14.0
738	PHM09-14 -DW-1	Rainbow Marina	14	D	13Apr89	112300	5.5	INCMG	2.6	1.8	1.2
739	PHM09-14B-SW-1	Rainbow Marina	14B	S	13Apr89	112100	0.5	INCMG	4.6	5.4	18.0
740	PHM09-14B-DW-1	Rainbow Marina	14B	D	13Apr89	112000	5	INCMG	3.5	4.0	5.4
741	PHM09-14C-SW-1	Rainbow Marina	14C	S	13Apr89	113000	0.5	INCMG	4.6	5.4	30.0
742	PHM09-14C-DW-1	Rainbow Marina	14C	D	13Apr89	112900	5	INCMG	2.8	2.2	2.4
743	PHM09-16 -SW-1	Waiau Shoal	16	S	13Apr89	092400	0.5	INCMG	4.4	4.7	4.4
744	PHM09-16 -SW-2	Waiau Shoal	16	S	13Apr89	092600	0.5	INCMG	3.0	2.0	1.7
745	PHM09-16 -SW-3	Waiau Shoal	16	S	13Apr89	092900	0.5	INCMG	.	3.0	1.8
746	PHM09-16 -DW-1	Waiau Shoal	16	D	13Apr89	092500	2.5	INCMG	2.4	2.0	1.1
747	PHM09-16 -DW-2	Waiau Shoal	16	D	13Apr89	092800	3.5	INCMG	3.2	2.6	0.8
748	PHM09-16 -DW-3	Waiau Shoal	16	D	13Apr89	093000	3	INCMG	1.8	3.0	3.0
749	PHM09-05B-SW-1	Drydock #4	05B	S	12Apr89	105000	0.5	INCMG	1.6	2.6	0.8
750	PHM09-05B-SW-2	Drydock #4	05B	S	12Apr89	105400	0.5	INCMG	2.8	4.4	2.4
751	PHM09-05B-SW-3	Drydock #4	05B	S	12Apr89	105700	0.5	INCMG	2.2	1.8	0.0
752	PHM09-05B-DW-1	Drydock #4	05B	D	12Apr89	105200	17	INCMG	2.4	1.8	0.8
753	PHM09-05B-DW-2	Drydock #4	05B	D	12Apr89	105500	17.5	INCMG	4.8	1.8	1.0
754	PHM09-05B-DW-3	Drydock #4	05B	D	12Apr89	105800	17	INCMG	3.2	1.2	0.5
755	PHM10-01 -SW-1	Entrance Channel	01	S	11Jul89	102000	0.5	HISLK	3.4	1.5	0.8
756	PHM10-01 -DW-1	Entrance Channel	01	D	11Jul89	102300	11	HISLK	6.7	1.9	0.7
757	PHM10-03 -SW-1	Entrance Channel	03	S	11Jul89	103100	0.5	HISLK	5.6	3.6	1.3
758	PHM10-03 -DW-1	Entrance Channel	03	D	11Jul89	103300	20	HISLK	2.2	1.4	0.5
759	PHM10-05C-SW-1	Entrance Channel	05C	S	11Jul89	104200	0.5	HISLK	3.6	3.6	0.8
760	PHM10-05C-DW-1	Entrance Channel	05C	D	11Jul89	104300	15	HISLK	6.2	2.4	0.8
761	PHM10-03A-SW-1	West Loch	03A	S	11Jul89	111800	0.5	HISLK	0.9	0.4	0.7
762	PHM10-03A-DW-1	West Loch	03A	D	11Jul89	112000	7.5	HISLK	4.6	1.9	0.7
763	PHM10-03C-SW-1	West Loch	03C	S	11Jul89	114800	0.5	HISLK	1.2	1.7	0.0
764	PHM10-03C-DW-1	West Loch	03C	D	11Jul89	114900	10.5	HISLK	2.0	2.1	0.5
765	PHM10-03D-SW-1	West Loch	03D	S	11Jul89	115700	0.5	HISLK	3.4	1.9	0.5
766	PHM10-03D-DW-1	West Loch	03D	D	11Jul89	115600	16	HISLK	1.4	1.6	0.5
767	PHM10-07B-SW-1	South Channel	07B	S	12Jul89	091200	0.5	INCMG	8.2	3.0	4.7
768	PHM10-07B-DW-1	South Channel	07B	D	12Jul89	091100	15.5	INCMG	1.6	1.5	0.7
769	PHM10-08C-SW-1	South Channel	08C	S	12Jul89	091800	0.5	INCMG	7.9	3.2	2.3
770	PHM10-08C-DW-1	South Channel	08C	D	12Jul89	091600	14	INCMG	[illegible]	2.1	1.2
771	PHM10-09A-SW-1	South Channel	09A	S	12Jul89	092500	0.5	INCMG	6.5	5.7	3.0
772	PHM10-09A-DW-1	South Channel	09A	D	12Jul89	092400	14	INCMG	6.3	0.2	3.4
773	PHM10-07 -SW-1	Drydock #2	07	S	11Jul89	145000	0.5	HISLK	5.3	3.4	1.3
774	PHM10-07 -SW-2	Drydock #2	07	S	11Jul89	145100	0.5	HISLK	6.4	6.1	2.5
775	PHM10-07 -SW-3	Drydock #2	07	S	11Jul89	145300	0.5	HISLK	4.9	4.3	1.1
776	PHM10-07 -DW-1	Drydock #2	07	D	11Jul89	145400	16	HISLK	2.5	1.4	1.4
777	PHM10-07 -DW-2	Drydock #2	07	D	11Jul89	145600	16	HISLK	5.7	3.6	3.8
778	PHM10-07 -DW-3	Drydock #2	07	D	11Jul89	145700	16	HISLK	2.3	2.9	9.8
779	PHM10-09B-SW-1	Southeast Loch	09B	S	12Jul89	090600	0.5	INCMG	6.8	7.2	6.3
780	PHM10-09B-DW-1	Southeast Loch	09B	D	12Jul89	090500	5	INCMG	4.7	2.7	1.9
781	PHM10-11A-SW-1	Southeast Loch	11A	S	12Jul89	085200		INCMG	14.0	12.0	15.0

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
782	PHM10-11A-DW-1	Southeast Loch	11A	D	12Jul89	085000	13.5	INCMG	4.2	1.6	3.5
783	PHM10-11B-SW-1	Southeast Loch	11B	S	12Jul89	090000	0.5	INCMG	6.5	7.4	7.9
784	PHM10-11B-DW-1	Southeast Loch	11B	D	12Jul89	085800	12.5	INCMG	3.2	1.9	2.0
785	PHM10-17A-SW-1	North Channel	17A	S	11Jul89	135500	0.5	HISLK	4.3	3.9	1.7
786	PHM10-17A-DW-1	North Channel	17A	D	11Jul89	135700	13	HISLK	4.2	2.1	0.4
787	PHM10-20 -SW-1	North Channel	20	S	11Jul89	144000	0.5	HISLK	4.2	3.4	0.8
788	PHM10-20 -DW-1	North Channel	20	D	11Jul89	144200	13.5	HISLK	2.2	1.5	0.3
789	PHM10-21 -SW-1	North Channel	21	S	11Jul89	132100	0.5	HISLK	6.0	4.0	2.2
790	PHM10-21 -DW-1	North Channel	21	D	11Jul89	132300	13	HISLK	3.6	2.3	0.6
791	PHM10-19 -SW-1	Middle Loch	19	S	11Jul89	141500	0.5	HISLK	2.9	3.1	0.3
792	PHM10-19 -DW-1	Middle Loch	19	D	11Jul89	141700	7	HISLK	2.0	2.2	0.6
793	PHM10-19A-SW-1	Middle Loch	19A	S	11Jul89	142800	0.5	HISLK	.	.	.
794	PHM10-19A-DW-1	Middle Loch	19A	D	11Jul89	143000	12	HISLK	1.7	0.8	0.6
795	PHM10-19B-SW-1	Middle Loch	19B	S	11Jul89	140700	0.5	HISLK	2 3	4 4	0.4
796	PHM10-19B-DW-1	Middle Loch	19B	D	11Jul89	140800	7	HISLK	1.4	2.4	0.0
797	PHM10-14 -SW-1	Rainbow Marina	14	S	12Jul89	095200	0.5	INCMG	80.0	11.0	54.0
798	PHM10-14 -DW-1	Rainbow Marina	14	D	12Jul89	095300	6	INCMG	7.8	7.7	4.9
799	PHM10-14B-SW-1	Rainbow Marina	14B	S	12Jul89	093500	0.5	INCMG	8.5	12.0	15.0
800	PHM10-14B-DW-1	Rainbow Marina	14B	D	12Jul89	093400	5	INCMG	18.0	10.0	24.0
801	PHM10-14C-SW-1	Rainbow Marina	14C	S	12Jul89	100500	0.5	INCMG	6.0	5.9	4.9
802	PHM10-14C-DW-1	Rainbow Marina	14C	D	12Jul89	100300	4.5	INCMG	8.3	5.9	0.4
803	PHM10-16 -SW-1	Waiau Shoal	16	S	11Jul89	133800	0.5	HISLK	4.1	3.5	1.5
804	PHM10-16 -SW-2	Waiau Shoal	16	S	11Jul89	133900	0.5	HISLK	5.0	4.1	1.4
805	PHM10-16 -SW-3	Waiau Shoal	16	S	11Jul89	134000	0.5	HISLK	.	.	
806	PHM10-16 -DW-1	Waiau Shoal	16	D	11Jul89	134100	4	HISLK	5.3	3.2	1.1
807	PHM10-16 -DW-2	Waiau Shoal	16	D	11Jul89	134200	4	HISLK	4.0	3.6	1.5
808	PHM10-16 -DW-3	Waiau Shoal	16	D	11Jul89	134300	4	HISLK	4.7	3.8	1.5
809	PHM10-05B-SW-1	Drydock #4	05B	S	11Jul89	105000	0.5	HISLK	4.5	3.4	1.6
810	PHM10-05B-SW-2	Drydock #4	05B	S	11Jul78	105500	0.5	HISLK	3.9	4.2	1.3
811	PHM10-05B-SW-3	Drydock #4	05B	S	11Jul89	105800	0.5	HISLK	5.1	4.2	1.7
812	PHM10-05B-DW-1	Drydock #4	05B	D	11Jul89	105200	18	HISLK	7.7	1.8	0.5
813	PHM10-05B-DW-2	Drydock #4	05B	D	11Jul89	105400	17.5	HISLK	3.9	1.6	0.5
814	PHM10-05B-DW-3	Drydock #4	05B	D	11Jul89	105700	17	HISLK	5.4	1.9	0.6

Tissue

Obs	sample	region	station	date	time	species	mbtcl_t	dbtcl_t	tbtcl_t
1	PHM -03A-T-1	West Loch	03A	9Apr86	1235	Crassostrea virginica	.	.	0.070
2	PHM -03A-T-2	West Loch	03A	9Apr86	1237	Crassostrea virginica	.	.	0.070
3	PHM -03A-T-3	West Loch	03A	9Apr86	1240	Crassostrea virginica	.	.	0.070
4	PHM -05A-T-1	Entrance Channel	05A	17Apr86	1115	Crassostrea virginica	.	.	0.070
5	PHM -05A-T-2	Entrance Channel	05A	17Apr86	1120	Crassostrea virginica	.	.	0.090
6	PHM -14B-T-1	Rainbow Marina	14B	17Apr86	1300	Crassostrea virginica	.	.	0.250
7	PHM -14B-T-2	Rainbow Marina	14B	17Apr86	1305	Crassostrea virginica	.	.	0.520
8	PHM -14B-T-3	Rainbow Marina	14B	17Apr86	1310	Crassostrea virginica	.	.	0.270
9	PHM -14B-T-1	Rainbow Marina	14B	17Apr86	1315	Crassostrea gigas	.	.	0.000
10	PHM2 -03A-T-1	West Loch	03A	10Feb87	1030	Crassostrea virginica	.	0.070	0.070
11	PHM2 -03A-T-2	West Loch	03A	10Feb87	1031	Crassostrea virginica	.	0.070	0.070
12	PHM2 -03A-T-3	West Loch	03A	10Feb87	1032	Crassostrea virginica	.	0.070	0.070
13	PHM2 -05A-T-1	Entrance Channel	05A	19Mar87	1114	Ostrea spp.	.	0.290	0.071
14	PHM2 -05A-T-2	Entrance Channel	05A	19Mar87	1115	Ostrea spp.	.	0.120	0.052
15	PHM2 -05A-T-3	Entrance Channel	05A	19Mar87	1116	Ostrea spp.	.	0.070	0.070
16	PHM2 -06 -T-1	North Channel	06	19Mar87	1029	Ostrea spp.	.	0.160	0.130
17	PHM2 -06 -T-2	North Channel	06	19Mar87	1030	Ostrea spp.	.	0.070	0.190
18	PHM2 -06 -T-3	North Channel	06	19Mar87	1031	Ostrea spp.	.	0.036	0.000
19	PHM2 -07 -T-1	Drydock #2	07	24Feb87	1229	Ostrea spp.	.	0.430	0.280
20	PHM2 -07 -T-2	Drydock #2	07	24Feb87	1230	Ostrea spp.	.	0.310	0.200
21	PHM2 -07 -T-3	Drydock #2	07	24Feb87	1231	Ostrea spp.	.	0.640	0.250
22	PHM2 -14B-T-1	Rainbow Marina	14B	19Mar87	1214	Ostrea spp.	.	0.490	0.450
23	PHM2 -14B-T-2	Rainbow Marina	14B	19Mar87	1215	Ostrea spp.	.	0.480	0.470
24	PHM2 -14B-T-3	Rainbow Marina	14B	19Mar87	1216	Ostrea spp.	.	0.260	0.170
25	PHM2 -16 -T-1	Waiau Shoal	16	19Mar87	0959	Ostrea spp.	.	0.070	0.200
26	PHM2 -16 -T-2	Waiau Shoal	16	19Mar87	1000	Ostrea spp.	.	0.070	0.120
27	PHM2 -16 -T-3	Waiau Shoal	16	19Mar87	1001	Ostrea spp.	.	0.070	0.160
28	PHM4 -03A-T-1	West Loch	03A	2Aug87	1029	Crassostrea virginica	.	0.020	0.020
29	PHM4 -03A-T-2	West Loch	03A	2Aug87	1030	Crassostrea virginica	.	0.020	0.020
30	PHM4 -03A-T-3	West Loch	03A	2Aug87	1031	Crassostrea virginica	.	0.020	0.020
31	PHM4 -07 -T-1	Drydock #2	07	24Aug87	1100	Ostrea spp.	.	0.020	0.050
32	PHM4 -07 -T-2	Drydock #2	07	24Aug87	1107	Ostrea spp.	.	0.021	0.060
33	PHM4 -07 -T-3	Drydock #2	07	24Aug87	1115	Ostrea spp.	.	0.020	0.080
34	PHM4 -14A-T-1	Rainbow Marina	14A	24Aug87	1129	Crassostrea virginica	.	0.020	0.080
35	PHM4 -14A-T-2	Rainbow Marina	14A	24Aug87	1130	Crassostrea virginica	.	0.020	0.050
36	PHM4 -14A-T-3	Rainbow Marina	14A	24Aug87	1131	Crassostrea virginica	.	0.020	0.050
37	PHM6 -03A-T-1	West Loch	03A	19Jan88	1128	Crassostrea virginica	.	0.025	0.025
38	PHM6 -07 -T-1	Drydock #2	07	20Jan88	1325	Ostrea spp.	.	0.044	0.110
39	PHM6 -07 -T-2	Drydock #2	07	20Jan88	1330	Ostrea spp.	.	0.086	0.084
40	PHM6 -07 -T-3	Drydock #2	07	20Jan88	1335	Ostrea spp.	.	0.091	0.075
41	PHM6 -14A-T-1	Rainbow Marina	14A	20Jan88	1420	Crassostrea virginica	.	0.030	0.140
42	PHM6 -14A-T-2	Rainbow Marina	14A	20Jan88	1425	Crassostrea virginica	.	0.025	0.200
43	PHM6 -14A-T-3	Rainbow Marina	14A	20Jan88	1430	Crassostrea virginica	.	0.025	0.210
44	PHM6 -16 -T-1	Waiau Shoal	16	20Jan88	1100	Crassostrea virginica	.	0.025	0.170
45	PHM6 -16 -T-2	Waiau Shoal	16	20Jan88	1105	Crassostrea virginica	.	0.025	0.120
46	PHM6 -16 -T-3	Waiau Shoal	16	20Jan88	1110	Crassostrea virginica	.	0.025	0.120

Obs	sample	region	station	date	time	depth	mbtcl_s	dbtcl_s	tbtcl_s
1	PHM -01 -S-1	Entrance Channel	01	9Apr86	1345	10.0	0.000	0.000	0.018
2	PHM -01 -S-3	Entrance Channel	01	9Apr86	1349	10.0	0.000	0.000	0.012
3	PHM -03A-S-1	West Loch	03A	9Apr86	1301	2.5	0.000	0.000	0.012
4	PHM -03A-S-3	West Loch	03A	9Apr86	1305	2.5	0.000	0.006	0.020
5	PHM -05 -S-1	Entrance Channel	05	9Apr86	1208	15.0	0.000	0.052	0.076
6	PHM -05 -S-2	Entrance Channel	05	9Apr86	1210	15.0	0.000	0.026	0.130
7	PHM -05 -S-3	Entrance Channel	05	9Apr86	1212	15.0	0.000	0.066	0.140
8	PHM -08A-S-1	Southeast Loch	08A	8Apr86	1235	11.8	0.160	0.180	0.390
9	PHM -08A-S-2	Southeast Loch	08A	8Apr86	1237	11.8	0.076	0.140	0.220
10	PHM -08A-S-3	Southeast Loch	08A	8Apr86	1239	11.8	0.200	0.250	0.580
11	PHM -09 -S-1	Southeast Loch	09	17Apr86	1050	14.0	0.000	0.000	0.086
12	PHM -09 -S-2	Southeast Loch	09	17Apr86	1052	14.0	0.000	0.008	0.048
13	PHM -09 -S-3	Southeast Loch	09	17Apr86	1054	14.0	0.000	0.000	0.094
14	PHM -10 -S-1	Southeast Loch	10	17Apr86	1036	14.0	0.026	0.150	0.160
15	PHM -10 -S-3	Southeast Loch	10	17Apr86	1040	14.0	0.100	0.320	1.200
16	PHM -10C-S-1	Southeast Loch	10C	8Apr86	1256	12.5	0.110	0.420	0.750
17	PHM -10C-S-3	Southeast Loch	10C	8Apr86	1300	12.5	0.098	0.440	0.650
18	PHM -11 -S-1	Southeast Loch	11	8Apr86	1115	10.0	0.032	0.200	0.280
19	PHM -11 -S-2	Southeast Loch	11	8Apr86	1117	10.0	0.046	0.230	0.270
20	PHM -11 -S-3	Southeast Loch	11	8Apr86	1119	10.0	0.030	0.210	0.290
21	PHM -12 -S-1	Southeast Loch	12	8Apr86	1128	16.0	0.210	0.400	0.580
22	PHM -12 -S-2	Southeast Loch	12	8Apr86	1130	16.0	0.180	0.310	0.540
23	PHM -12 -S-3	Southeast Loch	12	8Apr86	1132	16.0	0.170	0.400	0.580
24	PHM -13 -S-1	South Channel	13	8Apr86	1230	11.0	0.000	0.044	0.078
25	PHM -13 -S-2	South Channel	13	8Apr86	1232	11.0	0.000	0.032	0.044
26	PHM -13 -S-3	South Channel	13	8Apr86	1234	11.0	0.064	0.076	0.058
27	PHM -14 -S-2	Rainbow Marina	14	8Apr86	1327	5.0	0.048	0.120	0.060
28	PHM -14 -S-3	Rainbow Marina	14	8Apr86	1329	5.0	0.000	0.076	0.072
29	PHM -16 -S-1	Waiau Shoal	16	9Apr86	1105	3.0	0.032	0.000	0.024
30	PHM -16 -S-3	Waiau Shoal	16	9Apr86	1109	3.0	0.000	0.000	0.032
31	PHM -19 -S-1	Middle Loch	19	9Apr86	1135	7.0	0.000	0.000	0.048
32	PHM2 -01 -S-1	Entrance Channel	01	10Feb87	956	12.5	0.000	0.000	0.008
33	PHM2 -01 -S-2	Entrance Channel	01	10Feb87	957	12.5	0.000	0.000	0.018
34	PHM2 -01 -S-3	Entrance Channel	01	10Feb87	958	12.5	0.000	0.000	0.018
35	PHM2 -03A-S-1	West Loch	03A	10Feb87	1019	4.0	0.000	0.000	0.000
36	PHM2 -03A-S-2	West Loch	03A	10Feb87	1020	4.0	0.000	0.000	0.014
37	PHM2 -03A-S-3	West Loch	03A	10Feb87	1021	4.0	0.000	0.000	0.016
38	PHM2 -05 -S-2	Entrance Channel	05	10Feb87	1122	15.0	0.000	0.064	0.140
39	PHM2 -05 -S-3	Entrance Channel	05	10Feb87	1123	15.0	0.000	0.050	0.078
40	PHM2 -05B-S-1	Drydock #4	05B	10Feb87	1114	17.0	0.000	0.000	0.190
41	PHM2 -05B-S-2	Drydock #4	05B	10Feb87	1115	17.0	0.000	0.026	0.094
42	PHM2 -05B-S-3	Drydock #4	05B	10Feb87	1116	17.0	0.000	0.046	0.170
43	PHM2 -06 -S-1	North Channel	06	10Feb87	1129	4.0	0.000	0.000	0.000
44	PHM2 -06 -S-2	North Channel	06	10Feb87	1130	4.0	0.000	0.000	0.010
45	PHM2 -06 -S-3	North Channel	06	10Feb87	1131	4.0	0.000	0.000	0.010
46	PHM2 -07 -S-1	Drydock #2	07	10Feb87	1231	16.0	0.076	0.430	3.000
47	PHM2 -07 -S-2	Drydock #2	07	10Feb87	1232	16.0	0.044	0.710	1.700
48	PHM2 -07A-S-1	South Channel	07A	10Feb87	1224	12.0	0.000	0.110	0.280
49	PHM2 -07A-S-2	South Channel	07A	10Feb87	1225	12.0	0.000	0.120	0.610
50	PHM2 -07A-S-3	South Channel	07A	10Feb87	1226	12.0	0.032	0.200	0.760
51	PHM2 -07B-S-1	South Channel	07B	10Feb87	1216	16.0	0.000	0.036	0.074
52	PHM2 -07B-S-2	South Channel	07B	10Feb87	1217	16.0	0.000	0.024	0.040
53	PHM2 -07B-S-3	South Channel	07B	10Feb87	1218	16.0	0.000	0.030	0.060
54	PHM2 -08B-S-1	South Channel	08B	10Feb87	1239	13.0	0.000	0.094	0.580
55	PHM2 -08B-S-2	South Channel	08B	10Feb87	1240	13.0	0.000	0.140	0.840
56	PHM2 -08B-S-3	South Channel	08B	10Feb87	1241	13.0	0.000	0.200	1.600
57	PHM2 -08C-S-1	South Channel	08C	10Feb87	1247	14.0	0.000	0.036	0.310
58	PHM2 -08C-S-2	South Channel	08C	10Feb87	1248	14.0	0.000	0.036	0.510
59	PHM2 -08C-S-3	South Channel	08C	10Feb87	1249	14.0	0.000	0.062	0.370
60	PHM2 -09 -S-1	Southeast Loch	09	10Feb87	1301	13.5	0.000	0.036	0.036
61	PHM2 -09 -S-2	Southeast Loch	09	10Feb87	1302	13.5	0.000	0.060	0.100
62	PHM2 -09 -S-3	Southeast Loch	09	10Feb87	1303	13.5	0.000	0.054	0.064
63	PHM2 -09A-S-1	South Channel	09A	10Feb87	1254	13.0	0.000	0.034	0.086
64	PHM2 -09A-S-2	South Channel	09A	10Feb87	1255	13.0	0.000	0.028	0.076
65	PHM2 -09A-S-3	South Channel	09A	10Feb87	1256	13.0	0.000	0.036	0.080
66	PHM2 -09B-S-1	Southeast Loch	09B	10Feb87	1314	13.0	0.000	0.038	0.098
67	PHM2 -09B-S-2	Southeast Loch	09B	10Feb87	1315	13.0	0.000	0.024	0.048
68	PHM2 -09B-S-3	Southeast Loch	09B	10Feb87	1316	13.0	0.000	0.034	0.058
69	PHM2 -10 -S-1	Southeast Loch	10	10Feb87	1330	13.5	0.000	0.050	0.098
70	PHM2 -10 -S-2	Southeast Loch	10	10Feb87	1331	13.5	0.000	0.022	0.032
71	PHM2 -10 -S-3	Southeast Loch	10	10Feb87	1332	13.5	0.044	0.042	0.046

Obs	sample	region	station	date	time	depth	mbtcl_s	dbtcl_s	tbtcl_s
72	PHM2 -10C-S-1	Southeast Loch	10C	10Feb87	1324	11.0	0.270	0.500	0.880
73	PHM2 -10C-S-2	Southeast Loch	10C	10Feb87	1325	11.0	0.230	0.430	0.820
74	PHM2 -10C-S-3	Southeast Loch	10C	10Feb87	1326	11.0	0.042	0.150	0.550
75	PHM2 -11 -S-1	Southeast Loch	11	10Feb87	1338	12.5	0.084	0.350	0.660
76	PHM2 -11 -S-2	Southeast Loch	11	10Feb87	1339	12.5	0.150	0.430	1.100
77	PHM2 -11 -S-3	Southeast Loch	11	10Feb87	1340	12.5	0.090	0.390	0.820
78	PHM2 -14 -S-1	Rainbow Marina	14	10Feb87	1346	6.5	0.048	0.074	0.034
79	PHM2 -14 -S-2	Rainbow Marina	14	10Feb87	1347	6.5	0.044	0.066	0.038
80	PHM2 -14 -S-3	Rainbow Marina	14	10Feb87	1348	6.5	0.036	0.068	0.028
81	PHM2 -15 -S-1	North Channel	15	10Feb87	1159	13.0	0.000	0.000	0.036
82	PHM2 -15 -S-2	North Channel	15	10Feb87	1200	13.0	0.000	0.032	0.042
83	PHM2 -15 -S-3	North Channel	15	10Feb87	1201	13.0	0.000	0.030	0.026
84	PHM2 -16 -S-2	Waiau Shoal	16	10Feb87	1150	5.0	0.022	0.058	0.012
85	PHM2 -16 -S-3	Waiau Shoal	16	10Feb87	1151	5.0	0.024	0.012	0.018
86	PHM3 -01 -S-1	Entrance Channel	01	15Apr87	1131	8.5	.	0.000	0.026
87	PHM3 -01 -S-2	Entrance Channel	01	15Apr87	1132	8.5	.	0.000	0.036
88	PHM3 -01 -S-3	Entrance Channel	01	15Apr87	1133	8.5	.	0.008	0.020
89	PHM3 -03A-S-1	West Loch	03A	15Apr87	1117	7.0	.	0.000	0.000
90	PHM3 -03A-S-2	West Loch	03A	15Apr87	1118	7.0	.	0.000	0.042
91	PHM3 -03A-S-3	West Loch	03A	15Apr87	1119	7.0	.	0.000	0.028
92	PHM3 -05 -S-1	Entrance Channel	05	15Apr87	1149	13.5	.	0.000	0.094
93	PHM3 -05 -S-2	Entrance Channel	05	15Apr87	1150	13.5	.	0.030	0.100
94	PHM3 -05 -S-3	Entrance Channel	05	15Apr87	1151	13.5	.	0.000	0.160
95	PHM3 -05B-S-1	Drydock #4	05B	15Apr87	1139	16.5	.	0.076	0.240
96	PHM3 -05B-S-2	Drydock #4	05B	15Apr87	1140	16.5	.	0.076	0.240
97	PHM3 -05B-S-3	Drydock #4	05B	15Apr87	1141	16.5	.	0.066	0.250
98	PHM3 -06 -S-1	North Channel	06	15Apr87	1056	9.0	.	0.000	0.028
99	PHM3 -06 -S-2	North Channel	06	15Apr87	1057	9.0	.	0.000	0.040
100	PHM3 -06 -S-3	North Channel	06	15Apr87	1058	9.0	.	0.000	0.040
101	PHM3 -07 -S-1	Drydock #2	07	15Apr87	1204	15.0	.	0.330	4.700
102	PHM3 -07 -S-2	Drydock #2	07	15Apr87	1205	15.0	.	0.300	4.300
103	PHM3 -07A-S-1	South Channel	07A	15Apr87	1159	15.0	.	0.060	0.200
104	PHM3 -07A-S-2	South Channel	07A	15Apr87	1200	15.0	.	0.062	0.240
105	PHM3 -07A-S-3	South Channel	07A	15Apr87	1201	15.0	.	0.080	0.280
106	PHM3 -07B-S-1	South Channel	07B	15Apr87	1154	15.5	.	0.054	0.100
107	PHM3 -07B-S-2	South Channel	07B	15Apr87	1155	15.5	.	0.000	0.038
108	PHM3 -07B-S-3	South Channel	07B	15Apr87	1156	15.5	.	0.010	0.066
109	PHM3 -08B-S-1	South Channel	08B	15Apr87	1216	14.5	.	0.100	0.560
110	PHM3 -08B-S-2	South Channel	08B	15Apr87	1217	14.5	.	0.190	0.710
111	PHM3 -08B-S-3	South Channel	08B	15Apr87	1218	14.5	.	0.066	0.310
112	PHM3 -08C-S-1	South Channel	08C	15Apr87	1221	15.0	.	0.000	0.000
113	PHM3 -08C-S-2	South Channel	08C	15Apr87	1222	15.0	.	0.000	0.000
114	PHM3 -08C-S-3	South Channel	08C	15Apr87	1223	15.0	.	0.000	0.200
115	PHM3 -09 -S-1	Southeast Loch	09	15Apr87	1234	14.0	.	0.000	0.130
116	PHM3 -09 -S-2	Southeast Loch	09	15Apr87	1235	14.0	.	0.000	0.100
117	PHM3 -09 -S-3	Southeast Loch	09	15Apr87	1236	14.0	.	0.000	0.120
118	PHM3 -09A-S-1	South Channel	09A	15Apr87	1227	13.5	.	0.000	0.000
119	PHM3 -09A-S-2	South Channel	09A	15Apr87	1228	13.5	.	0.000	0.000
120	PHM3 -09A-S-3	South Channel	09A	15Apr87	1229	13.5	.	0.000	0.000
121	PHM3 -09B-S-1	Southeast Loch	09B	15Apr87	1244	14.0	.	0.000	0.000
122	PHM3 -09B-S-2	Southeast Loch	09B	15Apr87	1245	14.0	.	0.000	0.000
123	PHM3 -09B-S-3	Southeast Loch	09B	15Apr87	1246	14.0	.	0.000	0.000
124	PHM3 -10 -S-1	Southeast Loch	10	15Apr87	1259	13.5	.	0.150	0.230
125	PHM3 -10 -S-2	Southeast Loch	10	15Apr87	1300	13.5	.	0.130	0.150
126	PHM3 -10 -S-3	Southeast Loch	10	15Apr87	1301	13.5	.	0.130	0.170
127	PHM3 -10B-S-1	Southeast Loch	10B	15Apr87	1249	10.5	.	0.780	1.800
128	PHM3 -10B-S-2	Southeast Loch	10B	15Apr87	1250	10.5	.	0.350	1.100
129	PHM3 -10B-S-3	Southeast Loch	10B	15Apr87	1251	10.5	.	0.310	0.620
130	PHM3 -11 -S-1	Southeast Loch	11	15Apr87	1305	12.5	.	0.350	0.640
131	PHM3 -11 -S-2	Southeast Loch	11	15Apr87	1306	12.5	.	0.390	0.750
132	PHM3 -11 -S-3	Southeast Loch	11	15Apr87	1307	12.5	.	0.290	0.460
133	PHM3 -14 -S-1	Rainbow Marina	14	15Apr87	1324	6.5	.	0.000	0.046
134	PHM3 -14 -S-2	Rainbow Marina	14	15Apr87	1325	6.5	.	0.032	0.062
135	PHM3 -14 -S-3	Rainbow Marina	14	15Apr87	1326	6.5	.	0.000	0.068
136	PHM3 -15 -S-1	North Channel	15	15Apr87	1314	12.5	.	0.022	0.000
137	PHM3 -15 -S-2	North Channel	15	15Apr87	1325	12.5	.	0.026	0.024
138	PHM3 -15 -S-3	North Channel	15	15Apr87	1316	12.5	.	0.000	0.026
139	PHM3 -16 -S-1	Waiau Shoal	16	15Apr87	1026	4.5	.	0.000	0.044
140	PHM3 -16 -S-2	Waiau Shoal	16	15Apr87	1027	4.5	.	0.000	0.040
141	PHM3 -16 -S-3	Waiau Shoal	16	15Apr87	1028	4.5	.	0.000	0.038
142	PHM3 -19 -S-1	Middle Loch	19	15Apr87	1040	7.0	.	0.170	0.210

Obs	sample	region	station	date	time	depth	mbtcl_s	dbtcl_s	tbtcl_s
143	PHM3 -19 -S-2	Middle Loch	19	15Apr87	1041	7.0	.	0.054	0.082
144	PHM3 -19 -S-3	Middle Loch	19	15Apr87	1042	7.0	.	0.062	0.070
145	PHM6 -01 -S-1	Entrance Channel	01	19Jan88	1157	13.0	.	0.000	0.000
146	PHM6 -03 -S-1	Entrance Channel	03	19Jan88	1205	16.5	.	0.000	0.020
147	PHM6 -03A-S-1	West Loch	03A	19Jan88	1117	6.5	.	0.000	0.038
148	PHM6 -03A-S-2	West Loch	03A	19Jan88	1118	6.5	.	0.000	0.034
149	PHM6 -03A-S-3	West Loch	03A	19Jan88	1119	6.5	.	0.000	0.024
150	PHM6 -03D-S-1	West Loch	03D	19Jan88	1145	16.0	.	0.000	0.000
151	PHM6 -05B-S-1	Drydock #4	05B	19Jan88	1212	17.0	.	0.130	0.250
152	PHM6 -05B-S-2	Drydock #4	05B	19Jan88	1213	17.0	.	0.110	0.410
153	PHM6 -05B-S-3	Drydock #4	05B	19Jan88	1214	17.0	.	0.150	0.390
154	PHM6 -05C-S-1	Entrance Channel	05C	19Jan88	1217	14.5	.	0.000	0.034
155	PHM6 -05C-S-2	Entrance Channel	05C	19Jan88	1218	14.5	.	0.000	0.028
156	PHM6 -05C-S-3	Entrance Channel	05C	19Jan88	1219	14.5	.	0.000	0.040
157	PHM6 -07 -S-1	Drydock #2	07	19Jan88	1323	15.0	.	0.170	1.600
158	PHM6 -07 -S-2	Drydock #2	07	19Jan88	1324	15.0	.	0.310	1.900
159	PHM6 -07 -S-3	Drydock #2	07	19Jan88	1325	15.0	.	0.720	2.300
160	PHM6 -07B-S-1	South Channel	07B	19Jan88	1317	17.0	.	0.024	0.058
161	PHM6 -09A-S-1	South Channel	09A	19Jan88	1328	14.0	.	0.120	0.150
162	PHM6 -09B-S-1	Southeast Loch	09B	19Jan88	1332	13.0	.	0.062	0.110
163	PHM6 -10 -S-1	Southeast Loch	10	19Jan88	1335	12.5	.	0.048	0.092
164	PHM6 -11A-S-1	Southeast Loch	11A	19Jan88	1343	13.5	.	0.240	0.340
165	PHM6 -11A-S-2	Southeast Loch	11A	19Jan88	1344	13.5	.	0.250	0.340
166	PHM6 -11A-S-3	Southeast Loch	11A	19Jan88	1345	13.5	.	0.190	0.280
167	PHM6 -14 -S-1	Rainbow Marina	14	19Jan88	1426	6.5	.	0.072	0.072
168	PHM6 -16 -S-1	Waiau Shoal	16	19Jan88	1402	3.5	.	0.032	0.032
169	PHM6 -18A-S-1	North Channel	18A	19Jan88	1257	13.0	.	0.230	1.900
170	PHM6 -18A-S-2	North Channel	18A	19Jan88	1258	13.0	.	0.150	0.980
171	PHM6 -18A-S-3	North Channel	18A	19Jan88	1259	13.0	.	0.420	1.200
172	PHM6 -19 -S-1	Middle Loch	19	19Jan88	1303	11.5	.	0.046	0.054
173	PHM6 -19A-S-1	Middle Loch	19A	19Jan88	1310	11.5	.	0.000	0.000
174	PHM6 -21 -S-1	North Channel	21	19Jan88	1354	13.0	.	0.000	0.034
175	PHM8 -03 -S-1	Entrance Channel	03	16Jan89	1048	16.0	0.039	0.048	0.038
176	PHM8 -03A-S-1	West Loch	03A	16Jan89	1126	8.0	0.051	0.036	0.040
177	PHM8 -03C-S-1	West Loch	03C	16Jan89	1215	11.0	0.044	0.050	0.045
178	PHM8 -03D-S-1	West Loch	03D	16Jan89	1110	17.0	0.047	0.053	0.042
179	PHM8 -05B-S-1	Drydock #4	05B	16Jan89	1255	17.5	0.320	0.160	0.250
180	PHM8 -05B-S-2	Drydock #4	05B	16Jan89	1258	17.5	0.280	0.120	0.150
181	PHM8 -05B-S-3	Drydock #4	05B	16Jan89	1300	18.0	0.530	0.250	0.390
182	PHM8 -05C-S-1	Entrance Channel	05C	16Jan89	1311	14.5	0.025	0.048	0.047
183	PHM8 -07 -S-1	Drydock #2	07	17Jan89	1301	15.5	1.100	0.510	1.300
184	PHM[illegible] -07 -S-2	Drydock #2	07	17Jan89	1303	15.5	2.100	0.160	3.700
185	P[illegible] -07 -S-3	Drydock #2	07	17Jan89	1322	15.5	0.560	0.310	0.890
186	PHM8 -07B-S-1	South Channel	07B	17Jan89	1204	16.0	0.087	0.078	0.067
187	PHM8 -09A-S-1	South Channel	09A	17Jan89	1140	13.5	0.026	0.062	0.063
188	PHM8 -09B-S-1	Southeast Loch	09B	17Jan89	1130	14.5	0.026	0.100	0.099
189	PHM8 -11A-S-1	Southeast Loch	11A	17Jan89	1107	14.0	0.034	0.320	0.420
190	PHM8 -11B-S-1	Southeast Loch	11B	17Jan89	1116	12.5	0.005	0.150	0.140
191	PHM8 -14 -S-1	Rainbow Marina	14	17Jan89	1036	6.5	0.270	2.200	1.100
192	PHM8 -14B-S-1	Rainbow Marina	14B	17Jan89	1022	4.5	0.008	0.065	0.074
193	PHM8 -14C-S-1	Rainbow Marina	14C	17Jan89	1044	5.5	0.041	0.044	0.043
194	PHM8 -16 -S-1	Waiau Shoal	16	17Jan89	1410	4.5	0.028	0.038	0.042
195	PHM8 -16 -S-2	Waiau Shoal	16	17Jan89	1416	3.0	0.025	0.028	0.034
196	PHM8 -16 -S-3	Waiau Shoal	16	17Jan89	1420	5.0	0.028	0.040	0.043
197	PHM8 -19 -S-1	Middle Loch	19	16Jan89	1352	8.0	0.007	0.150	0.130
198	PHM8 -19A-S-1	Middle Loch	19A	16Jan89	1404	12.5	0.005	0.036	0.060
199	PHM8 -19B-S-1	Middle Loch	19B	16Jan89	1330	6.5	0.005	0.110	0.071
200	PHM8 -01 -S-1	Entrance Channel	01	16Jan89	1030	.	0.030	0.022	0.018
201	PHM8 -01 -S-1	Entrance Channel	01	16Jan89	1030	.	0.030	0.022	0.017
202	PHM8 -01 -S-1	Entrance Channel	01	16Jan89	1030	.	0.031	0.022	0.012
203	PHM8 -08C-S-1	South Channel	08C	17Jan89	1152	13.5	0.240	0.140	0.094
204	PHM8 -08C-S-1	South Channel	08C	17Jan89	1152	13.5	0.310	0.110	0.120
205	PHM8 -08C-S-1	South Channel	08C	17Jan89	1152	13.5	0.310	0.110	0.150
206	PHM8 -17A-S-1	North Channel	17A	17Jan89	1401	14.0	0.005	0.032	0.058
207	PHM8 -17A-S-1	North Channel	17A	17Jan89	1401	14.0	0.005	0.032	0.053
208	PHM8 -17A-S-1	North Channel	17A	17Jan89	1401	14.0	0.005	0.034	0.062
209	PHM8 -20 -S-1	North Channel	20	17Jan89	1344	15.0	0.010	0.022	0.029
210	PHM8 -20 -S-1	North Channel	20	17Jan89	1344	15.0	0.010	0.021	0.022
211	PHM8 -21 -S-1	North Channel	21	17Jan89	1450	14.0	0.011	0.170	0.081
212	PHM8 -21 -S-1	North Channel	21	17Jan89	1450	14.0	0.003	0.040	0.052
213	PHM8 -21 -S-1	North Channel	21	17Jan89	1450	14.0	0.004	0.054	0.037

Norfolk Harbor Organotin Monitoring
Water

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
1	NFM -01 -SW-3	Hampton Roads	01	S	10Jun86	1115	0.5	HISLK	2.0	0.0	0.0
2	NFM -01 -SW-3	Hampton Roads	01	S	10Jun86	1749	0.5	LOSLK	2.0	0.0	0.0
3	NFM -01 -DW-3	Hampton Roads	01	D	10Jun86	1119	20	HISLK	0.0	0.0	0.0
4	NFM -01 -DW-3	Hampton Roads	01	D	10Jun86	1759	20	LOSLK	0.0	0.0	0.0
5	NFM -23 -SW-3	Hampton Roads	23	S	11Jun86	1246	0.5	HISLK	2.0	0.0	0.0
6	NFM -23 -SW-1	Hampton Roads	23	S	11Jun86	1819	0.5	LOSLK	0.0	0.0	0.0
7	NFM -23 -SW-3	Hampton Roads	23	S	11Jun86	1821	0.5	LOSLK	0.0	0.0	0.0
8	NFM -23 -DW-3	Hampton Roads	23	D	11Jun86	1251	3.5	HISLK	0.0	2.0	0.0
9	NFM -23 -DW-3	Hampton Roads	23	D	11Jun86	1825	2	LOSLK	0.0	1.0	0.0
10	NFM -29 -SW-3	Hampton Roads	29	S	11Jun86	1302	0.5	HISLK	0.0	0.0	0.0
11	NFM -29 -SW-3	Hampton Roads	29	S	11Jun86	1835	0.5	LOSLK	0.0	2.0	0.0
12	NFM -29 -DW-3	Hampton Roads	29	D	11Jun86	1309	5	HISLK	0.0	0.0	0.0
13	NFM -29 -DW-3	Hampton Roads	29	D	11Jun86	1841	4	LOSLK	0.0	0.0	0.0
14	NFM -34 -SW-3	Hampton Roads	34	S	10Jun86	1158	0.5	HISLK	0.0	0.0	0.0
15	NFM -34 -SW-3	Hampton Roads	34	S	10Jun86	1843	0.5	LOSLK	0.0	0.0	0.0
16	NFM -34 -DW-3	Hampton Roads	34	D	10Jun86	1206	2	HISLK	0.0	0.0	0.0
17	NFM -35 -SW-3	Hampton Roads	35	S	11Jun86	1324	0.5	HISLK	0.0	0.0	0.0
18	NFM -35 -SW-3	Hampton Roads	35	S	11Jun86	1831	0.5	LOSLK	0.0	0.0	0.0
19	NFM -35 -DW-3	Hampton Roads	35	D	11Jun86	1332	12.5	HISLK	3.0	0.0	0.0
20	NFM -35 -DW-3	Hampton Roads	35	D	11Jun86	1843	12	LOSLK	0.0	0.0	0.0
21	NFM -25 -SW-3	James River	25	S	12Jun86	0836	0.5	LOSLK	0.0	0.0	0.0
22	NFM -25 -SW-3	James River	25	S	12Jun86	1353	0.5	HISLK	0.0	0.0	0.0
23	NFM -25 -DW-3	James River	25	D	12Jun86	0841	11.5	LOSLK	0.0	0.0	0.0
24	NFM -25 -DW-3	James River	25	D	12Jun86	1356	11	HISLK	0.0	0.0	0.0
25	NFM -36 -SW-3	James River	36	S	12Jun86	0735	0.5	LOSLK	0.0	0.0	0.0
26	NFM -36 -SW-3	James River	36	S	12Jun86	1329	0.5	HISLK	0.0	0.0	0.0
27	NFM -36 -DW-3	James River	36	D	12Jun86	0742	7	LOSLK	0.0	0.0	0.0
28	NFM -36 -DW-3	James River	36	D	12Jun86	1336	13	HISLK	0.0	0.0	0.0
29	NFM -03 -SW-3	Naval Station	03	S	10Jun86	1203	0.5	HISLK	0.0	0.0	0.0
30	NFM -03 -SW-3	Naval Station	03	S	10Jun86	1751	0.5	LOSLK	0.0	0.0	0.0
31	NFM -03 -DW-3	Naval Station	03	D	10Jun86	1214	13	HISLK	0.0	0.0	0.0
32	NFM -03 -DW-3	Naval Station	03	D	10Jun86	1759	12	LOSLK	0.0	0.0	0.0
33	NFM -04 -SW-3	Naval Station	04	S	11Jun86	1329	0.5	HISLK	2.0	0.0	0.0
34	NFM -04 -SW-1	Naval Station	04	S	11Jun86	1734	0.5	LOSLK	5.0	0.0	0.0
35	NFM -04 -SW-3	Naval Station	04	S	11Jun86	1736	0.5	LOSLK	0.0	0.0	0.0
36	NFM -04 -DW-3	Naval Station	04	D	11Jun86	1333	12	HISLK	0.0	0.0	0.0
37	NFM -04 -DW-3	Naval Station	04	D	11Jun86	1741	13	LOSLK	0.0	0.0	0.0
38	NFM -09 -SW-3	Naval Station	09	S	14Jun86	0911	0.5	LOSLK	0.0	0.0	0.0
39	NFM -09 -SW-1	Naval Station	09	S	14Jun86	1459	0.5	HISLK	4.0	0.0	0.0
40	NFM -09 -SW-3	Naval Station	09	S	14Jun86	1501	0.5	HISLK	5.0	2.0	0.0
41	NFM -09 -DW-3	Naval Station	09	D	14Jun86	0916	14	LOSLK	0.0	2.0	0.0
42	NFM -09 -DW-3	Naval Station	09	D	14Jun86	1505	15	HISLK	0.0	0.0	0.0
43	NFM -10 -SW-1	Elizabeth River	10	S	14Jun86	0931	0.5	LOSLK	12.0	7.0	0.0
44	NFM -10 -SW-2	Elizabeth River	10	S	14Jun86	0932	0.5	LOSLK	16.0	6.0	8.0
45	NFM -10 -SW-3	Elizabeth River	10	S	14Jun86	0933	0.5	LOSLK	19.0	8.0	6.0
46	NFM -10 -SW-3	Elizabeth River	10	S	14Jun86	1524	0.5	HISLK	7.0	3.0	0.0
47	NFM -10 -DW-3	Elizabeth River	10	D	14Jun86	0941	10	LOSLK	0.0	3.0	6.0
48	NFM -10 -DW-1	Elizabeth River	10	D	14Jun86	1527	15	HISLK	9.0	0.0	0.0
49	NFM -10 -DW-3	Elizabeth River	10	D	14Jun86	1529	15	HISLK	10.0	5.0	7.0
50	NFM -11 -SW-1	Elizabeth River	11	S	13Jun86	1017	0.5	LOSLK	9.0	7.0	0.0
51	NFM -11 -SW-2	Elizabeth River	11	S	13Jun86	1018	0.5	LOSLK	8.0	10.0	6.0
52	NFM -11 -SW-3	Elizabeth River	11	S	13Jun86	1019	0.5	LOSLK	12.0	5.0	0.0
53	NFM -11 -SW-1	Elizabeth River	11	S	13Jun86	1534	0.5	HISLK	8.0	6.0	0.0
54	NFM -11 -SW-3	Elizabeth River	11	S	13Jun86	1536	0.5	HISLK	5.0	6.0	2.0
55	NFM -11 -DW-1	Elizabeth River	11	D	13Jun86	1021	6.5	LOSLK	4.0	6.0	6.0
56	NFM -11 -DW-3	Elizabeth River	11	D	13Jun86	1023	6.5	LOSLK	2.0	6.0	0.0
57	NFM -11 -DW-1	Elizabeth River	11	D	13Jun86	1538	8	HISLK	0.0	5.0	0.0
58	NFM -11 -DW-3	Elizabeth River	11	D	13Jun86	1540	8	HISLK	3.0	6.0	6.0
59	NFM -13A-SW-1	Elizabeth River	13A	S	13Jun86	0814	0.5	LOSLK	6.0	8.0	5.0
60	NFM -13A-SW-3	Elizabeth River	13A	S	13Jun86	0816	0.5	LOSLK	9.0	8.0	.
61	NFM -13A-SW-3	Elizabeth River	13A	S	13Jun86	1408	0.5	HISLK	15.0	5.0	6.0
62	NFM -13A-DW-1	Elizabeth River	13A	D	13Jun86	0817	7	LOSLK	13.0	8.0	0.0
63	NFM -13A-DW-3	Elizabeth River	13A	D	13Jun86	0819	7	LOSLK	6.0	9.0	10.0
64	NFM -13A-DW-1	Elizabeth River	13A	D	13Jun86	1409	8	HISLK	7.0	8.0	10.0
65	NFM -13A-DW-2	Elizabeth River	13A	D	13Jun86	1410	8	HISLK	7.0	9.0	11.0
66	NFM -13A-DW-3	Elizabeth River	13A	D	13Jun86	1411	8	HISLK	7.0	6.0	5.0
67	NFM -15 -SW-1	Elizabeth River	15	S	13Jun86	0851	0.5	LOSLK	0.0	9.0	0.0
68	NFM -15 -SW-3	Elizabeth River	15	S	13Jun86	0853	0.5	LOSLK	8.0	5.0	0.0
69	NFM -15 -SW-3	Elizabeth River	15	S	13Jun86	1435	0.5	HISLK	8.0		3.0
70	NFM -15 -DW-1	Elizabeth River	15	D	13Jun86	0855	5.5	LOSLK	7.0	8.0	0.0
71	NFM -15 -DW-3	Elizabeth River	15	D	13Jun86	0857	5.5	LOSLK	8.0	8.0	5.0

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Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
72	NFM -15 -DW-1	Elizabeth River	15	D	13Jun86	1437	11	HISLK	8.0	10.0	10.0
73	NFM -15 -DW-3	Elizabeth River	15	D	13Jun86	1439	11	HISLK	13.0	9.0	7.0
74	NFM -17A-SW-1	Elizabeth River	17A	S	13Jun86	0911	0.5	LOSLK	9.0	4.0	0.0
75	NFM -17A-SW-3	Elizabeth River	17A	S	13Jun86	0913	0.5	LOSLK	6.0	5.0	0.0
76	NFM -17A-SW-1	Elizabeth River	17A	S	13Jun86	1449	0.5	HISLK	6.0	4.0	0.0
77	NFM -17A-SW-3	Elizabeth River	17A	S	13Jun86	1451	0.5	HISLK	10.0	3.0	0.0
78	NFM -17A-DW-1	Elizabeth River	17A	D	13Jun86	0916	7	LOSLK	5.0	6.0	9.0
79	NFM -17A-DW-2	Elizabeth River	17A	D	13Jun86	0917	7	LOSLK	4.0	10.0	8.0
80	NFM -17A-DW-3	Elizabeth River	17A	D	13Jun86	0918	7	LOSLK	10.0	10.0	8.0
81	NFM -17A-DW-1	Elizabeth River	17A	D	13Jun86	1453	11	HISLK	8.0	9.0	12.0
82	NFM -17A-DW-2	Elizabeth River	17A	D	13Jun86	1454	11	HISLK	12.0	5.0	9.0
83	NFM -17A-DW-3	Elizabeth River	17A	D	13Jun86	1455	11	HISLK	7.0	5.0	0.0
84	NFM -19 -SW-1	Elizabeth River	19	S	13Jun86	0927	0.5	LOSLK	4.0	5.0	0.0
85	NFM -19 -SW-3	Elizabeth River	19	S	13Jun86	0929	0.5	LOSLK	0.0	4.0	0.0
86	NFM -19 -SW-1	Elizabeth River	19	S	13Jun86	1459	0.5	HISLK	7.0	4.0	6.0
87	NFM -19 -SW-3	Elizabeth River	19	S	13Jun86	1501	0.5	HISLK	5.0	3.0	3.0
88	NFM -19 -DW-1	Elizabeth River	19	D	13Jun86	0931	12.5	LOSLK	0.0	8.0	12.0
89	NFM -19 -DW-3	Elizabeth River	19	D	13Jun86	0933	12.5	LOSLK	2.0	5.0	9.0
90	NFM -19 -DW-1	Elizabeth River	19	D	13Jun86	1503	13	HISLK	7.0	5.0	11.0
91	NFM -19 -DW-3	Elizabeth River	19	D	13Jun86	1505	13	HISLK	3.0	4.0	5.0
92	NFM -21 -SW-1	Elizabeth River	21	S	13Jun86	0937	0.5	LOSLK	10.0	5.0	0.0
93	NFM -21 -SW-3	Elizabeth River	21	S	13Jun86	0939	0.5	LOSLK	13.0	5.0	2.0
94	NFM -21 -SW-1	Elizabeth River	21	S	13Jun86	1510	0.5	HISLK	11.0	5.0	0.0
95	NFM -21 -SW-3	Elizabeth River	21	S	13Jun86	1512	0.5	HISLK	8.0	3.0	3.0
96	NFM -21 -DW-1	Elizabeth River	21	D	13Jun86	0941	9	LOSLK	11.0	9.0	15.0
97	NFM -21 -DW-2	Elizabeth River	21	D	13Jun86	0942	9	LOSLK	6.0	7.0	11.0
98	NFM -21 -DW-3	Elizabeth River	21	D	13Jun86	0943	9	LOSLK	8.0	10.0	13.0
99	NFM -21 -DW-1	Elizabeth River	21	D	13Jun86	1513	12	HISLK	10.0	6.0	12.0
100	NFM -21 -DW-2	Elizabeth River	21	D	13Jun86	1514	12	HISLK	5.0	5.0	12.0
101	NFM -21 -DW-3	Elizabeth River	21	D	13Jun86	1515	12	HISLK	4.0	6.0	9.0
102	NFM -32 -SW-1	Elizabeth River	32	S	13Jun86	1007	0.5	LOSLK	15.0	8.0	6.0
103	NFM -32 -SW-2	Elizabeth River	32	S	13Jun86	1008	0.5	LOSLK	13.0	7.0	6.0
104	NFM -32 -SW-3	Elizabeth River	32	S	13Jun86	1009	0.5	LOSLK	3.0	5.0	0.0
105	NFM -32 -SW-1	Elizabeth River	32	S	13Jun86	1521	0.5	HISLK	27.0	11.0	7.0
106	NFM -32 -SW-3	Elizabeth River	32	S	13Jun86	1523	0.5	HISLK	16.0	7.0	6.0
107	NFM -32 -DW-1	Elizabeth River	32	D	13Jun86	1010	11.5	LOSLK	14.0	12.0	25.0
108	NFM -32 -DW-3	Elizabeth River	32	D	13Jun86	1012	11.5	LOSLK	4.0	8.0	17.0
109	NFM -32 -DW-1	Elizabeth River	32	D	13Jun86	1524	14	HISLK	3.0	6.0	14.0
110	NFM -32 -DW-2	Elizabeth River	32	D	13Jun86	1525	14	HISLK	4.0	5.0	11.0
111	NFM -32 -DW-3	Elizabeth River	32	D	13Jun86	1526	14	HISLK	4.0	5.0	8.0
112	NFM -33 -SW-1	Hampton River	33	S	10Jun86	1138	0.5	HISLK	16.0	16.0	43.0
113	NFM -33 -SW-2	Hampton River	33	S	10Jun86	1139	0.5	HISLK	15.0	13.0	30.0
114	NFM -33 -SW-3	Hampton River	33	S	10Jun86	1140	0.5	HISLK	22.0	17.0	43.0
115	NFM -33 -SW-1	Hampton River	33	S	10Jun86	1814	0.5	LOSLK	9.0	7.0	6.0
116	NFM -33 -SW-2	Hampton River	33	S	10Jun86	1815	0.5	LOSLK	13.0	5.0	0.0
117	NFM -33 -SW-3	Hampton River	33	S	10Jun86	1816	0.5	LOSLK	9.0	8.0	5.0
118	NFM -33 -DW-2	Hampton River	33	D	10Jun86	1819	2	LOSLK	9.0	7.0	8.0
119	NFM -33 -DW-3	Hampton River	33	D	10Jun86	1820	2	LOSLK	7.0	10.0	19.0
120	NFM -33 -DW-1	Hampton River	33	D	10Jun86	1144	2	HISLK	9.0	6.0	14.0
121	NFM -33 -DW-3	Hampton River	33	D	10Jun86	1146	2	HISLK	5.0	8.0	16.0
122	NFM -37 -SW-3	Lafayette River	37	S	14Jun86	1021	0.5	LOSLK	3.0	2.0	0.0
123	NFM -37 -SW-1	Lafayette River	37	S	14Jun86	1553	0.5	HISLK	0.0	0.0	0.0
124	NFM -37 -SW-2	Lafayette River	37	S	14Jun86	1554	0.5	HISLK	0.0	0.0	0.0
125	NFM -37 -SW-3	Lafayette River	37	S	14Jun86	1555	0.5	HISLK	4.0	0.0	0.0
126	NFM -37 -DW-3	Lafayette River	37	D	14Jun86	1024	4	LOSLK	2.0	3.0	0.0
127	NFM -37 -DW-3	Lafayette River	37	D	14Jun86	160[illegible]	4.5	HISLK	3.0	2.0	0.0
128	NFM2-01 -SW-1	Hampton Roads	01	S	25Oct88	0948	0.5	INCMG	0.0	0.0	2.0
129	NFM2-01 -SW-2	Hampton Roads	01	S	25Oct88	0957	0.5	INCMG	5.0	5.2	4.7
130	NFM2-01 -SW-3	Hampton Roads	01	S	25Oct88	1013	0.5	INCMG	5.9	5.0	3.0
131	NFM2-01 -DW-1	Hampton Roads	01	D	25Oct88	0952	18	INCMG	5.0	0.0	2.0
132	NFM2-01 -DW-2	Hampton Roads	01	D	25Oct88	0959	19	INCMG	0.0	0.0	0.0
133	NFM2-01 -DW-3	Hampton Roads	01	D	25Oct88	1016	16.5	INCMG	3.2	3.9	3.7
134	NFM2-29 -SW-1	Hampton Roads	29	S	25Oct88	1153	0.5	OUTGO	10.0	5.7	6.0
135	NFM2-29 -SW-2	Hampton Roads	29	S	25Oct88	1200	0.5	OUTGO	6.8	2.9	11.0
136	NFM2-29 -SW-3	Hampton Roads	29	S	25Oct88	1213	0.5	OUTGO	3.4	3.3	6.0
137	NFM2-29 -DW-1	Hampton Roads	29	D	25Oct88	1154	5.5	OUTGO	6.0	2.9	9.0
138	NFM2-29 -DW-2	Hampton Roads	29	D	25Oct88	1202	8	OUTGO	4.3	3.3	6.0
139	NFM2-29 -DW-3	Hampton Roads	29	D	25Oct88	1216	7.5	OUTGO	4.3	2.4	7.0
140	NFM2-25 -SW-1	James River	25	S	25Oct88	1235	0.5	OUTGO	3.0	2.3	2.7
141	NFM2-25 -SW-2	James River	25	S	25Oct88	1242	0.5	OUTGO	4.1	6.7	2.5
142	NFM2-25 -SW-3	James River	25	S	25Oct88	1303	0.5	OUTGO	1.8	2.7	2.5

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
143	NFM2-25 -DW-1	James River	25	D	25Oct88	1237	11.5	OUTGO	3.6	2.5	5.7
144	NFM2-25 -DW-2	James River	25	D	25Oct88	1243	10	OUTGO	2.6	3.2	4.4
145	NFM2-25 -DW-3	James River	25	D	25Oct88	1304	9	OUTGO	2.1	2.1	4.4
146	NFM2-03 -SW-1	Naval Station	03	S	25Oct88	1402	0.5	OUT[illegible]	3.2	5.7	8.1
147	NFM2-03 -SW-2	Naval Station	03	S	25Oct88	1407	0.5	OUTGO	3.0	2.0	4.0
148	NFM2-03 -SW-3	Naval Station	03	S	25Oct88	1420	0.5	OUTGO	3.3	5.0	5.0
149	NFM2-03 -DW-1	Naval Station	03	D	25Oct88	1405	7.5	OUTGO	6.4	3.9	4.4
150	NFM2-03 -DW-2	Naval Station	03	D	25Oct88	1408	15	OUTGO	2.0	0.0	4.0
151	NFM2-03 -DW-3	Naval Station	03	D	25Oct88	1425	15.5	OUTGO	0.0	1.0	4.0
152	NFM2-03A-SW-1	Naval Station	03A	S	25Oct88	1113	0.5	HISLK	0.0	0.0	2.0
153	NFM2-03A-SW-2	Naval Station	03A	S	25Oct88	1119	0.5	HISLK	4.7	3.1	1.4
154	NFM2-03A-SW-3	Naval Station	03A	S	25Oct88	1135	5	HISLK	3.3	2.7	0.0
155	NFM2-03A-DW-1	Naval Station	03A	D	25Oct88	1116	[illegible].5	HISLK	5.3	2.8	3.0
156	NFM2-03A-DW-2	Naval Station	03A	D	25Oct88	1121	6	HISLK	4.3	2.8	0.7
157	NFM2-03A-DW-3	Naval Station	03A	D	25Oct88	1[illegible]38	5	HISLK	1.6	2.3	0.0
158	NFM2-04 -SW-1	Naval Station	04	S	25Oct88	1328	0.5	OUTGO	0.0	4.0	5.0
159	NFM2-04 -SW-2	Naval Station	04	S	25Oct88	1333	0.5	OUTGO	3.0	2.0	3.0
160	NFM2-04 -SW-3	Naval Station	04	S	25Oct88	1352	0.5	OUTGO	5.0	3.0	4.0
161	NFM2-04 -DW-1	Naval Station	04	D	25Oct88	1330	14	OUTGO	2.6	4.0	8.1
162	NFM2-04 -DW-2	Naval Station	04	D	25Oct88	1336	12.5	OUTGO	4.0	3.0	4.0
163	NFM2-04 -DW-3	Naval Station	04	D	25Oct88	1353	16	OUTGO	4.7	4.7	4.1
164	NFM2-09 -SW-1	Naval Station	09	S	26Oct88	0956	0.5	INCMG	0.0	3.0	7.0
165	NFM2-09 -SW-2	Naval Station	09	S	26Oct88	1001	0.5	INCMG	9.4	5.8	6.1
166	NFM2-09 -SW-3	Naval Station	09	S	26Oct88	1017	0.5	INCMG	3.2	3.7	6.5
167	NFM2-09 -DW-1	Naval Station	09	D	26Oct88	0958	14	INCMG	0.0	1.0	6.0
168	NFM2-09 -DW-2	Naval Station	09	D	26Oct88	1002	12.5	INCMG	6.2	5.5	10.0
169	NFM2-09 -DW-3	Naval Station	09	D	26Oct88	1018	4	INCMG	0.0	4.0	5.0
170	NFM2-10 -SW-1	Elizabeth River	10	S	26Oct88	1033	0.5	INCMG	4.3	8.1	8.0
171	NFM2-10 -SW-2	Elizabeth River	10	S	26Oct88	1038	0.5	INCMG	4.3	7.6	11.0
172	NFM2-10 -SW-3	Elizabeth River	10	S	26Oct88	1053	0.5	INCMG	4.0	8.0	11.0
173	NFM2-10 -DW-1	Elizabeth River	10	D	26Oct88	1035	13	INCMG	0.0	2.0	9.0
174	NFM2-10 -DW-2	Elizabeth River	10	D	26Oct88	1039	11	INCMG	0.0	7.0	14.0
175	NFM2-10 -DW-3	Elizabeth River	10	D	26Oct88	1055	13.5	INCMG	4.0	4.0	10.0
176	NFM2-11 -SW-1	Elizabeth River	11	S	26Oct88	1105	0.5	INCMG	7.1	12.0	26.0
177	NFM2-11 -SW-2	Elizabeth River	11	S	26Oct88	1110	0.5	INCMG	5.7	10.0	17.0
178	NFM2-11 -SW-3	Elizabeth River	11	S	26Oct88	1127	0.5	INCMG	3.5	10.0	17.0
179	NFM2-11 -DW-1	Elizabeth River	11	D	26Oct88	1107	13.5	INCMG	4.3	11.0	18.0
180	NFM2-11 -DW-2	Elizabeth River	11	D	26Oct88	1112	14.5	INCMG	5.0	9.3	16.0
181	NFM2-11 -DW-3	Elizabeth River	11	D	26Oct88	1128	7	INCMG	2.8	12.0	17.0
182	NFM2-19 -SW-1	Elizabeth River	19	S	26Oct88	1206	0.5	HISLK	10.0	15.0	32.0
183	NFM2-19 -SW-2	Elizabeth River	19	S	26Oct88	1214	0.5	HISLK	8.5	13.0	37.0
184	NFM2-19 -SW-3	Elizabeth River	19	S	26Oct88	1232	0.5	HISLK	14.0	16.0	40.0
185	NFM2-19 -DW-1	Elizabeth River	19	D	26Oct88	1207	14.5	HISLK	14.0	14.0	37.0
186	NFM2-19 -DW-2	Elizabeth River	19	D	26Oct88	1215	13	HISLK	8.5	16.0	46.0
187	NFM2-19 -DW-3	Elizabeth River	19	D	26Oct88	1233	10	HISLK	9.4	12.0	38.0
188	NFM2-32 -SW-1	Elizabeth River	32	S	26Oct88	1133	0.5	HISLK	7.2	12.0	21.0
189	NFM2-32 -SW-2	Elizabeth River	32	S	26Oct88	1139	0.5	HISLK	6.2	13.0	18.0
190	NFM2-32 -SW-3	Elizabeth River	32	S	26Oct88	1153	0.5	HISLK	5.0	15.0	31.0
191	NFM2-32 -DW-1	Elizabeth River	32	D	26Oct88	1135	14.5	HISLK	2.1	5.3	9.5
192	NFM2-32 -DW-2	Elizabeth River	32	D	26Oct88	1141	12.5	HISLK	4.6	12.0	16.0
193	NFM2-32 -DW-3	Elizabeth River	32	D	26Oct88	1155	14	HISLK	2.1	7.7	24.0
194	NFM2-33 -SW-1	Hampton River	33	S	25Oct88	1033	0.5	INCMG	5.1	5.3	14.0
195	NFM2-33 -SW-2	Hampton River	33	S	25Oct88	1040	0.5	INCMG	3.8	5.5	8.9
196	NFM2-33 -SW-3	Hampton River	33	S	25Oct88	1101	0.5	INCMG	5.1	3.2	5.7
197	NFM2-33 -DW-1	Hampton River	33	D	25Oct88	1035	2	INCMG	4.1	3.9	11.0
198	NFM2-33 -DW-2	Hampton River	33	D	25Oct88	1044	3.5	INCMG	3.1	3.2	6.3
199	NFM2-33 -DW-3	Hampton River	33	D	25Oct88	1059	4	INCMG	3.1	3.9	5.1
200	NFM3-01 -SW-1	Hampton Roads	01	S	24Jan89	0845	0.5	INCMG	5.3	3.3	5.1
201	NFM3-01 -SW-2	Hampton Roads	01	S	24Jan89	0915	0.5	INCMG	1.5	1.4	3.0
202	NFM3-01 -SW-3	Hampton Roads	01	S	24Jan89	0930	0.5	INCMG	0.6	2.7	6.8
203	NFM3-01 -DW-1	Hampton Roads	01	D	24Jan89	0900	14.5	INCMG	0.6	2.7	6.8
204	NFM3-01 -DW-2	Hampton Roads	01	D	24Jan89	0910	14.5	INCMG	1.3	1.6	4.1
205	NFM3-01 -DW-3	Hampton Roads	01	D	24Jan89	0926	14.5	INCMG	0.0	2.7	3.0
206	NFM3-29 -SW-1	Hampton Roads	29	S	24Jan89	1120	0.5	INCMG	3.4	1.6	3.0
207	NFM3-29 -SW-2	Hampton Roads	29	S	24Jan89	1105	0.5	INCMG	3.7	1.4	3.0
208	NFM3-29 -SW-3	Hampton Roads	29	S	24Jan89	1130	0.5	INCMG	3.2	2.3	9.2
209	NFM3-29 -DW-1	Hampton Roads	29	D	24Jan89	1115	7	INCMG	1.8	2.3	4.1
210	NFM3-29 -DW-2	Hampton Roads	29	D	24Jan89	1100	6	INCMG	3.7	0.9	3.0
211	NFM3-29 -DW-3	Hampton Roads	29	D	24Jan89	1125	5.5	INCMG	2.3	1.6	4.6
212	NFM3-25 -SW-1	James River	25	S	24Jan89	1155	0.5	HISLK	3.7	1.3	1.8
213	NFM3-25 -SW-2	James River	25	S	24Jan89	1205	0.5	HISLK	3.4	1.4	2.1

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
214	NFM3-25 -SW-3	James River	25	S	24Jan89	1215	0.5	HISLK	3.2	2.1	2.7
215	NFM3-25 -DW-1	James River	25	D	24Jan89	1150	9.2	HISLK	1.6	1.9	4.6
216	NFM3-25 -DW-2	James River	25	D	24Jan89	1200	10.7	HISLK	2.5	1.2	3.0
217	NFM3-25 -DW-3	James River	25	D	24Jan89	1210	10	HISLK	1 8	2.3	4.1
218	NFM3-03 -SW-1	Naval Station	03	S	25Jan89	0905	0 5	INCMG	0 9	11.0	7 5
219	NFM3-03 -SW-2	Naval Station	03	S	25Jan89	0915	0.5	INCMG	1.9	2.3	8.9
220	NFM3-03 -SW-3	Naval Station	03	S	25Jan89	0923	0.5	INCMG	3.8	2.6	7.4
221	NFM3-03 -DW-1	Naval Station	03	D	25Jan89	0859	13	INCMG	2.3	2.2	4.6
222	NFM3-03 -DW-2	Naval Station	03	D	25Jan89	0913	13	INCMG	2.3	1.9	5.6
223	NFM3-03 -DW-3	Naval Station	03	D	25Jan89	0920	13	INCMG	2.0	2.2	4.6
224	NFM3-03A-SW-1	Naval Station	03A	S	24Jan89	1040	0.5	INCMG	2.5	1.5	1.7
225	NFM3-03A-SW-2	Naval Station	03A	S	24Jan89	1030	0.5	INCMG	0.0	2.7	2.3
226	NFM3-03A-SW-3	Naval Station	03A	S	24Jan89	1050	0.5	INCMG	0.0	2.1	3.8
227	NFM3-03A-DW-1	Naval Station	03A	D	24Jan89	1035	4.5	INCMG	0.6	3.7	5.3
228	NFM3-03A-DW-2	Naval Station	03A	D	24Jan89	1025	4.2	INCMG	0.0	4.4	3.0
229	NFM3-03A-DW-3	Naval Station	03A	D	24Jan89	1042	4.2	INCMG	4.2	1.1	2.0
230	NFM3-04 -SW-1	Naval Station	04	S	25Jan89	0835	0.5	INCMG	2.3	2.8	5.9
231	NFM3-04 -SW-2	Naval Station	04	S	25Jan89	0843	0.5	INCMG	2.3	2.5	9.6
232	NFM3-04 -SW-3	Naval Station	04	S	25Jan89	0855	0.5	INCMG	2.3	2.2	3.9
233	NFM3-04 -DW-1	Naval Station	04	D	25Jan89	0830	12.5	INCMG	2.7	2.2	4.6
234	NFM3-04 -DW-2	Naval Station	04	D	25Jan89	0840	12.5	INCMG	5.7	2.6	5.4
235	NFM3-04 -DW-3	Naval Station	04	D	25Jan89	0852	12.5	INCMG	4.3	3.6	7.6
236	NFM3-09 -SW-1	Naval Station	09	S	24Jan89	1245	0.5	OUTGO	4.5	2.3	6.9
237	NFM3-09 -SW-2	Naval Station	09	S	24Jan89	1255	0.5	OUTGO	1.7	2.3	5.3
238	NFM3-09 -SW-3	Naval Station	09	S	24Jan89	1310	0.5	OUTGO	2.6	0.7	3.3
239	NFM3-09 -DW-1	Naval Station	09	D	24Jan89	1242	13.5	OUTGO	2.0	0.4	2.6
240	NFM3-09 -DW-2	Naval Station	09	D	24Jan89	1250	13.5	OUTGO	5.3	3.2	7.8
241	NFM3-09 -DW-3	Naval Station	09	D	24Jan89	1305	13.5	OUTGO	1.9	4.4	8.3
242	NFM3-10 -SW-1	Elizabeth River	10	S	24Jan89	1321	0.5	OUTGO	3.9	4.5	11.0
243	NFM3-10 -SW-2	Elizabeth River	10	S	24Jan89	1326	0.5	OUTGO	3.1	3.0	7.1
244	NFM3-10 -SW-3	Elizabeth River	10	S	24Jan89	1340	0.5	OUTGO	4.9	5.4	16.0
245	NFM3-10 -DW-1	Elizabeth River	10	D	24Jan89	1317	13.5	OUTGO	3.9	4.8	8.1
246	NFM3-10 -DW-2	Elizabeth River	10	D	24Jan89	1323	13.5	OUTGO	2.5	7.3	8.7
247	NFM3-10 -DW-3	Elizabeth River	10	D	24Jan89	1335	13.5	OUTGO	4.0	5.5	12.0
248	NFM3-11 -SW-1	Elizabeth River	11	S	24Jan89	1349	0.5	OUTGO	6.0	9.1	20.0
249	NFM3-11 -SW-2	Elizabeth River	11	S	24Jan89	1355	0.5	OUTGO	10.0	15.0	37.0
250	NFM3-11 -SW-3	Elizabeth River	11	S	24Jan89	1410	0.5	OUTGO	7.6	14.0	51.0
251	NFM3-11 -DW-1	Elizabeth River	11	D	24Jan89	1345	12	OUTGO	4.0	9.5	21.0
252	NFM3-11 -DW-2	Elizabeth River	11	D	24Jan89	1352	12	OUTGO	6.4	9.7	27.0
253	NFM3-11 -DW-3	Elizabeth River	11	D	24Jan89	1405	12	OUTGO	5.7	9.7	29.0
254	NFM3-19 -SW-1	Elizabeth River	19	S	24Jan89	1443	0.5	OUTGO	6.5	7.7	16.0
255	NFM3-19 -SW-2	Elizabeth River	19	S	24Jan89	1449	0.5	OUTGO	3.3	5.3	24.0
256	NFM3-19 -SW-3	Elizabeth River	19	S	24Jan89	1500	0.5	OUTGO	3.9	3.5	27.0
257	NFM3-19 -DW-1	Elizabeth River	19	D	24Jan89	1440	11	OUTGO	4.9	3.5	42.0
258	NFM3-19 -DW-2	Elizabeth River	19	D	24Jan89	1446	11	OUTGO	3.9	5.9	27.0
259	NFM3-19 -DW-3	Elizabeth River	19	D	24Jan89	1455	11	OUTGO	5.0	5.9	33.0
260	NFM3-32 -SW-1	Elizabeth River	32	S	24Jan89	1414	0.5	OUTGO	9.3	11.0	27.0
261	NFM3-32 -SW-2	Elizabeth River	32	S	24Jan89	1420	0.5	OUTGO	4.8	9.7	27.0
262	NFM3-32 -SW-3	Elizabeth River	32	S	24Jan89	1430	0.5	OUTGO	7.6	12.0	33.0
263	NFM3-32 -DW-1	Elizabeth River	32	D	24Jan89	1412	13.5	OUTGO	9.6	12.0	29.0
264	NFM3-32 -DW-2	Elizabeth River	32	D	24Jan89	1417	13.5	OUTGO	5.9	14.0	30.0
265	NFM3-32 -DW-3	Elizabeth River	32	D	24Jan89	1425	13.5	OUTGO	4.8	9.4	24.0
266	NFM3-33 -SW-1	Hampton River	33	S	24Jan89	1000	0.5	INCMG	2.7	2.8	4.1
267	NFM3-33 -SW-2	Hampton River	33	S	24Jan89	1005	0.5	INCMG	3.2	2.3	3.6
268	NFM3-33 -SW-3	Hampton River	33	S	24Jan89	1015	0.5	INCMG	3.5	2.0	4.1
269	NFM3-33 -DW-1	Hampton River	33	D	24Jan89	0950	4	INCMG	2.5	1.3	2.4
270	NFM3-33 -DW-2	Hampton River	33	D	24Jan89	1010	4	INCMG	3.1	1.7	2.7
271	NFM3-33 -DW-3	Hampton River	33	D	24Jan89	1020	5.5	INCMG	3.4	1.7	2.4
272	NFM4-01 -SW-1	Hampton Roads	01	S	18Apr89	1100	0.5	HISLK	.	1.4	0.5
273	NFM4-01 -SW-2	Hampton Roads	01	S	18Apr89	1033	0.5	HISLK	.	0.9	1.6
274	NFM4-01 -SW-3	Hampton Roads	01	S	18Apr89	1112	0.5	HISLK	.	1.1	1.1
275	NFM4-01 -DW-1	Hampton Roads	01	D	18Apr89	1105	14	HISLK	.	.	0.0
276	NFM4-01 -DW-2	Hampton Roads	01	D	18Apr89	1040	14	HISLK	.	1.6	1.0
277	NFM4-01 -DW-3	Hampton Roads	01	D	18Apr89	1115	14.5	HISLK	.	1.0	1.3
278	NFM4-29 -SW-1	Hampton Roads	29	S	18Apr89	1239	0.5	HISLK	.	0.1	1.1
279	NFM4-29 -SW-2	Hampton Roads	29	S	18Apr89	1253	0.5	HISLK	.	1.4	0.7
280	NFM4-29 -SW-3	Hampton Roads	29	S	18Apr89	1235	0.5	HISLK	.	0.7	0.3
281	NFM4-29 -DW-1	Hampton Roads	29	D	18Apr89	1240	7	HISLK	.	1.3	1.1
282	NFM4-29 -DW-2	Hampton Roads	29	D	18Apr89	1257	7	HISLK	.	1.5	2.7
283	NFM4-29 -DW-3	Hampton Roads	29	D	18Apr89	1235	7	HISLK	.	0.7	1.1
284	NFM4-25 -SW-1	James River	25	S	18Apr89	1313	0.5	HISLK	.	0.4	0.1

Norfolk Harbor Organotin Monitoring
Water

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
285	NFM4-25 -SW-2	James River	25	S	18Apr89	1319	0.5	HISLK	.	2.6	1.4
286	NFM4-25 -SW-3	James River	25	S	18Apr89	1330	0.5	HISLK	.	1.5	0.6
287	NFM4-25 -DW-1	James River	25	D	18Apr89	1315	11.5	HISLK	.	1.1	2.7
288	NFM4-25 -DW-2	James River	25	D	18Apr89	1321	13.5	HISLK	.	1.9	3.0
289	NFM4-25 -DW-3	James River	25	D	18Apr89	1332	11.5	HISLK	.	1.8	0.0
290	NFM4-03 -SW-1	Naval Station	03	S	18Apr89	1438	0.5	HISLK	.	3.8	1.2
291	NFM4-03 -SW-2	Naval Station	03	S	18Apr89	1421	0.5	HISLK	.	2.4	0.7
292	NFM4-03 -SW-3	Naval Station	03	S	18Apr89	1437	0.5	HISLK	.	2.0	0.1
293	NFM4-03 -DW-1	Naval Station	03	D	18Apr89	1440	12.5	HISLK	.	1.5	0.6
294	NFM4-03 -DW-2	Naval Station	03	D	18Apr89	1423	12.5	HISLK	.	3.2	3.0
295	NFM4-03 -DW-3	Naval Station	03	D	18Apr89	1437	11.5	HISLK	.	2.6	1.1
296	NFM4-03A-SW-1	Naval Station	03A	S	18Apr89	1203	0.5	HISLK	.	0.7	1.1
297	NFM4-03A-SW-2	Naval Station	03A	S	18Apr89	1213	0.5	HISLK	.	1.1	0.9
298	NFM4-03A-SW-3	Naval Station	03A	S	18Apr89	1223	0.5	HISLK	.	1.5	1.2
299	NFM4-03A-DW-1	Naval Station	03A	D	18Apr89	1205	4.5	HISLK	.	1.5	0.6
300	NFM4-03A-DW-2	Naval Station	03A	D	18Apr89	1215	4	HISLK	.	0.9	1.1
301	NFM4-03A-DW-3	Naval Station	03A	D	18Apr89	1225	4	HISLK	.	0.7	0.3
302	NFM4-04 -SW-1	Naval Station	04	S	18Apr89	1414	0.5	HISLK	.	1.1	0.6
303	NFM4-04 -SW-2	Naval Station	04	S	18Apr89	1401	0.5	HISLK	.	0.7	0.6
304	NFM4-04 -SW-3	Naval Station	04	S	18Apr89	1359	0.5	HISLK	.	5.7	1.6
305	NFM4-04 -DW-1	Naval Station	04	D	18Apr89	1416	15.5	HISLK	.	1.7	2.7
306	NFM4-04 -DW-2	Naval Station	04	D	18Apr89	1403	13.5	HISLK	.	2.2	3.2
307	NFM4-04 -DW-3	Naval Station	04	D	18Apr89	1400	14.5	HISLK	.	1.1	2.1
308	NFM4-09 -SW-1	Naval Station	09	S	19Apr89	0933	0.5	HISLK	.	1.6	1.8
309	NFM4-09 -SW-2	Naval Station	09	S	19Apr89	0943	0.5	HISLK	.	2.2	1.3
310	NFM4-09 -SW-3	Naval Station	09	S	19Apr89	0950	0.5	HISLK	.	1.2	0.9
311	NFM4-09 -DW-1	Naval Station	09	D	19Apr89	0935	10.5	HISLK	.	1.1	2.7
312	NFM4-09 -DW-2	Naval Station	09	D	19Apr89	0945	12.5	HISLK	.	2.4	1.6
313	NFM4-09 -DW-3	Naval Station	09	D	19Apr89	0937	15.5	HISLK	.	1.3	2.0
314	NFM4-10 -SW-1	Elizabeth River	10	S	19Apr89	1002	0.5	HISLK	.	5.0	8.9
315	NFM4-10 -SW-2	Elizabeth River	10	S	19Apr89	1012	0.5	HISLK	.	4.2	4.9
316	NFM4-10 -SW-3	Elizabeth River	10	S	19Apr89	1020	0.5	HISLK	.	3.9	8.2
317	NFM4-10 -DW-1	Elizabeth River	10	D	19Apr89	1005	15	HISLK	.	1.1	2.8
318	NFM4-10 -DW-2	Elizabeth River	10	D	19Apr89	1015	15.5	HISLK	.	2.9	5.5
319	NFM4-10 -DW-3	Elizabeth River	10	D	19Apr89	1025	14	HISLK	.	4.8	2.8
320	NFM4-11 -SW-1	Elizabeth River	11	S	19Apr89	1025	0.5	HISLK	.	3.1	4.3
321	NFM4-11 -SW-2	Elizabeth River	11	S	19Apr89	1035	0.5	HISLK	.	3.8	5.3
322	NFM4-11 -SW-3	Elizabeth River	11	S	19Apr89	1044	0.5	HISLK	.	2.9	2.4
323	NFM4-11 -DW-1	Elizabeth River	11	D	19Apr89	1027	14.5	HISLK	.	1.3	2.7
324	NFM4-11 -DW-2	Elizabeth River	11	D	19Apr89	1037	14.5	HISLK	.	0.7	3.4
325	NFM4-11 -DW-3	Elizabeth River	11	D	19Apr89	1046	14.5	HISLK	.	2.6	5.6
326	NFM4-19 -SW-1	Elizabeth River	19	S	20Apr89	0943	0.5	HISLK	.	4.3	10.0
327	NFM4-19 -SW-2	Elizabeth River	19	S	20Apr89	0945	0.5	HISLK	.	4.5	14.0
328	NFM4-19 -SW-3	Elizabeth River	19	S	20Apr89	0956	0.5	HISLK	.	3.4	8.0
329	NFM4-19 -DW-1	Elizabeth River	19	D	20Apr89	0945	13.5	HISLK	.	3.7	6.8
330	NFM4-19 -DW-2	Elizabeth River	19	D	20Apr89	0947	13.5	HISLK	.	1.5	4.8
331	NFM4-19 -DW-3	Elizabeth River	19	D	20Apr89	0959	12	HISLK	.	1.6	4.2
332	NFM4-32 -SW-1	Elizabeth River	32	S	20Apr89	0915	0.5	HISLK	.	5.0	12.0
333	NFM4-32 -SW-2	Elizabeth River	32	S	20Apr89	0922	0.5	HISLK	.	3.4	8.2
334	NFM4-32 -SW-3	Elizabeth River	32	S	20Apr89	0931	0.5	HISLK	.	4.6	9.0
335	NFM4-32 -DW-1	Elizabeth River	32	D	20Apr89	0917	14.5	HISLK	.	5.0	9.2
336	NFM4-32 -DW-2	Elizabeth River	32	D	20Apr89	0924	15.5	HISLK	.	2.2	6.9
337	NFM4-32 -DW-3	Elizabeth River	32	D	20Apr89	0933	14	HISLK	.	2.9	10.0
338	NFM4-33 -SW-1	Hampton River	33	S	18Apr89	1125	0.5	HISLK	.	3.8	2.6
339	NFM4-33 -SW-2	Hampton River	33	S	18Apr89	1137	0.5	HISLK	.		
340	NFM4-33 -SW-3	Hampton River	33	S	18Apr89	1151	0.5	HISLK	.	1.5	0.6
341	NFM4-33 -DW-1	Hampton River	33	D	18Apr89	1125	3.4	HISLK	.	3.3	2.7
342	NFM4-33 -DW-2	Hampton River	33	D	18Apr89	1140	4	HISLK	.	4.9	6.7
343	NFM4-33 -DW-3	Hampton River	33	D	18Apr89	1155	4	HISLK	.	1.1	0.3
344	NFM5-01 -SW-1	Hampton Roads	01	S	11Jul89	0855	0.5	LOSLK	.	1.1	0.2
345	NFM5-01 -SW-2	Hampton Roads	01	S	11Jul89	0905	0.5	LOSLK	3.7	0.6	0.8
346	NFM5-01 -SW-3	Hampton Roads	01	S	11Jul89	0916	0.5	LOSLK	3.1	1.0	0.8
347	NFM5-01 -DW-1	Hampton Roads	01	D	11Jul89	0855	13	LOSLK	0.9	0.8	1.0
348	NFM5-01 -DW-2	Hampton Roads	01	D	11Jul89	0905	18	LOSLK	0.8	1.1	1.6
349	NFM5-01 -DW-3	Hampton Roads	01	D	11Jul89	0916	22	LOSLK	0.1	0.2	0.8
350	NFM5-29 -SW-1	Hampton Roads	29	S	11Jul89	1035	0.5	LOSLK	12.0	0.5	1.0
351	NFM5-29 -SW-2	Hampton Roads	29	S	11Jul89	1040	0.5	LOSLK	4.8	1.0	1.4
352	NFM5-29 -SW-3	Hampton Roads	29	S	11Jul89	1055	0.5	LOSLK	2.1	1.5	1.0
353	NFM5-29 -DW-1	Hampton Roads	29	D	11Jul89	1035	13	LOSLK	0.7	1.5	0.9
354	NFM5-29 -DW-2	Hampton Roads	29	D	11Jul89	1040	7	LOSLK	2.1	1.8	0.7
355	NFM5-29 -DW-3	Hampton Roads	29	D	11Jul89	1055	6	LOSLK	0.8	0.9	1.6

Obs	sample	region	station	layer	date	time	depth	tide	mbtcl	dbtcl	tbtcl
356	NFM5-25 -SW-1	James River	25	S	11Jul89	1115	0.5	LOSLK	1.0	0.3	0.4
357	NFM5-25 -SW-2	James River	25	S	11Jul89	1120	0.5	LOSLK	1.5	1.4	0.8
358	NFM5-25 -SW-3	James River	25	S							
359	NFM5-25 -DW-1	James River	25	D	11Jul89	1115	11.5	LOSLK	1.2	0.9	2.8
360	NFM5-25 -DW-2	James River	25	D	11Jul89	1120	11.5	LOSLK	2.1	2.2	2.9
361	NFM5-25 -DW-3	James River	25	D			.				
362	NFM5-03 -SW-1	Naval Station	03	S	11Jul89	1315	0.5	LOSLK	1.3	0.7	1.1
363	NFM5-03 -SW-2	Naval Station	03	S	11Jul89	1305	0.5	LOSLK	3.0	1.2	0.7
364	NFM5-03 -SW-3	Naval Station	03	S	11Jul89	1300	0.5	LOSLK	3.4	2.0	1.2
365	NFM5-03 -DW-1	Naval Station	03	D	11Jul89	1315	10.5	LOSLK	1.9	2.2	3.0
366	NFM5-03 -DW-2	Naval Station	03	D	11Jul89	1305	17	LOSLK	2.5	2.4	1.2
367	NFM5-03 -DW-3	Naval Station	03	D	11Jul89	1300	17	LOSLK	2.6	0.6	1.2
368	NFM5-03A-SW-1	Naval Station	03A	S	11Jul89	1015	0.5	LOSLK	2.7	3.5	1.8
369	NFM5-03A-SW-2	Naval Station	03A	S	11Jul89	1007	0.5	LOSLK	20.0	4.2	1.6
370	NFM5-03A-SW-3	Naval Station	03A	S	11Jul89	1020	0.5	LOSLK	5.2	1.1	0.9
371	NFM5-03A-DW-1	Naval Station	03A	D	11Jul89	1015	3	LOSLK	19.0	5.2	1.0
372	NFM5-03A-DW-2	Naval Station	03A	D	11Jul89	1007	9	LOSLK	2.1	1.8	2.3
373	NFM5-03A-DW-3	Naval Station	03A	D	11Jul89	1020	7	LOSLK	1.3	1.7	1.6
374	NFM5-04 -SW-1	Naval Station	04	S	11Jul89	1250	0.5	LOSLK	2.6	0.2	0.8
375	NFM5-04 -SW-2	Naval Station	04	S	11Jul89	1245	0.5	LOSLK	1.6	2.0	0.3
376	NFM5-04 -SW-3	Naval Station	04	S	11Jul89	1240	0.5	LOSLK	1.5	0.5	0.2
377	NFM5-04 -DW-1	Naval Station	04	D	11Jul89	1250	14	LOSLK	1.3	1.1	0.8
378	NFM5-04 -DW-2	Naval Station	04	D	11Jul89	1245	14	LOSLK	1.6	1.2	1.0
379	NFM5-04 -DW-3	Naval Station	04	D	11Jul89	1240	14	LOSLK	1.9	1.1	2.2
380	NFM5-09 -SW-1	Naval Station	09	S	11Jul89	1235	0.5	LOSLK	1.2	0.4	1.1
381	NFM5-09 -SW-2	Naval Station	09	S	11Jul89	1225	0.5	LOSLK	2.9	0.2	0.6
382	NFM5-09 -SW-3	Naval Station	09	S	11Jul89	1220	0.5	LOSLK	1.2	0.4	0.6
383	NFM5-09 -DW-1	Naval Station	09	D	11Jul89	1235	14.5	LOSLK	3.0	2.1	2.4
384	NFM5-09 -DW-2	Naval Station	09	D	11Jul89	1225	14.5	LOSLK	1.0	1.5	2.8
385	NFM5-09 -DW-3	Naval Station	09	D	11Jul89	1220	14.5	LOSLK	1.3	1.3	1.8
386	NFM5-10 -SW-1	Elizabeth River	10	S	11Jul89	1210	0.5	LOSLK	3.2	4.1	3.6
387	NFM5-10 -SW-2	Elizabeth River	10	S	11Jul89	1200	0.5	LOSLK	1.0	2.2	1.4
388	NFM5-10 -SW-3	Elizabeth River	10	S	11Jul89	1155	0.5	LOSLK	1.1	1.5	1.6
389	NFM5-10 -DW-1	Elizabeth River	10	D	11Jul89	1210	6.5	LOSLK	0.7	0.9	2.0
390	NFM5-10 -DW-2	Elizabeth River	10	D	11Jul89	1200	14.5	LOSLK	0.8	1.1	2.5
391	NFM5-10 -DW-3	Elizabeth River	10	D	11Jul89	1155	14	LOSLK	0.9	2.0	2.8
392	NFM5-11 -SW-1	Elizabeth River	11	S	12Jul89	0850	0.5	LOSLK	1.7	2.4	4.4
393	NFM5-11 -SW-2	Elizabeth River	11	S	12Jul89	0855	0.5	LOSLK	3.9	2.9	4.4
394	NFM5-11 -SW-3	Elizabeth River	11	S	12Jul89	0905	0.5	LOSLK	1.5	2.0	3.8
395	NFM5-11 -DW-1	Elizabeth River	11	D	12Jul89	0850	10.5	LOSLK	2.2	4.7	10.0
396	NFM5-11 -DW-2	Elizabeth River	11	D	12Jul89	0855	15	LOSLK	1.7	0.9	4.7
397	NFM5-11 -DW-3	Elizabeth River	11	D	12Jul89	0905	16	LOSLK		1.5	6.5
398	NFM5-19 -SW-1	Elizabeth River	19	S	12Jul89	0933	0.5	LOSLK	3.4	4.0	4.0
399	NFM5-19 -SW-2	Elizabeth River	19	S	12Jul89	0941	0.5	LOSLK	6.2	2.4	3.3
400	NFM5-19 -SW-3	Elizabeth River	19	S	12Jul89	0950	0.5	LOSLK	0.5	0.8	2.3
401	NFM5-19 -DW-1	Elizabeth River	19	D	12Jul89	0933	11.5	LOSLK	1.9	1.7	5.9
402	NFM5-19 -DW-2	Elizabeth River	19	D	12Jul89	0941	14	LOSLK	5.8	1.0	14.0
403	NFM5-19 -DW-3	Elizabeth River	19	D	12Jul89	0950	13	LOSLK	1.4	6.2	14.0
404	NFM5-32 -SW-1	Elizabeth River	32	S	12Jul89	0910	0.5	LOSLK	1.0	4.3	8.1
405	NFM5-32 -SW-2	Elizabeth River	32	S	12Jul89	0915	0.5	LOSLK	1.2	2.1	4.2
406	NFM5-32 -SW-3	Elizabeth River	32	S	12Jul89	0923	0.5	LOSLK	2.7	2.9	5.9
407	NFM5-32 -DW-1	Elizabeth River	32	D	12Jul89	0910	13.5	LOSLK	1.5	3.1	12.0
408	NFM5-32 -DW-2	Elizabeth River	32	D	12Jul89	0915	17	LOSLK	2.4	2.0	7.9
409	NFM5-32 -DW-3	Elizabeth River	32	D	12Jul89	0923	13.5	LOSLK	2.5	4.5	14.0
410	NFM5-33 -SW-1	Hampton River	33	S	11Jul89	0930	0.5	LOSLK	3.8	5.0	2.6
411	NFM5-33 -SW-2	Hampton River	33	S	11Jul89	0940	0.5	LOSLK	5.8	5.4	5.3
412	NFM5-33 -SW-3	Hampton River	33	S	11Jul89	0948	0.5	LOSLK	2.9	3.7	3.3
413	NFM5-33 -DW-1	Hampton River	33	D	11Jul89	0930	4	LOSLK	4.5	5.6	4.6
414	NFM5-33 -DW-2	Hampton River	33	D	11Jul89	0940	5	LOSLK	2.8	3.3	4.0
415	NFM5-33 -DW-3	Hampton River	33	D	11Jul89	0948	5	LOSLK	2.1	7.0	5.0

Obs	sample	region	station	date	time	species	mbtcl_t	dbtcl_t	tbtcl_t
1	NFM -03B-T-1	Naval Station	03B	17Jun86	1140	Crassostrea virginica	.	0.000	0.000
2	NFM -03B-T-2	Naval Station	03B	17Jun86	1143	Crassostrea virginica	.	0.000	0.430
3	NFM -03B-T-3	Naval Station	03B	17Jun86	1145	Crassostrea virginica	.	0.000	0.000
4	NFM -11 -T-1	Elizabeth River	11	9Jun86	1240	Crassostrea virginica	.	0.000	1.600
5	NFM -11 -T-2	Elizabeth River	11	9Jun86	1242	Crassostrea virginica	.	0.280	0.890
6	NFM -11 -T-3	Elizabeth River	11	9Jun86	1244	Crassostrea virginica	.	0.260	1.200
7	NFM -13A-T-1	Elizabeth River	13A	13Jun86	0830	Crassostrea virginica	.	0.040	4.100
8	NFM -13A-T-2	Elizabeth River	13A	13Jun86	0831	Crassostrea virginica	.	0.110	3.100
9	NFM -13A-T-3	Elizabeth River	13A	13Jun86	0832	Crassostrea virginica	.	0.000	8.300
10	NFM -15 -T-1	Elizabeth River	15	13Jun86	0855	Crassostrea virginica	.	0.000	0.440
11	NFM -15 -T-2	Elizabeth River	15	13Jun86	0856	Crassostrea virginica	.	0.000	0.560
12	NFM -15 -T-3	Elizabeth River	15	13Jun86	0857	Crassostrea virginica	.	0.000	0.560
13	NFM -17A-T-1	Elizabeth River	17A	13Jun86	0920	Crassostrea virginica	.	0.000	0.870
14	NFM -17A-T-2	Elizabeth River	17A	13Jun86	0921	Crassostrea virginica	.	0.000	0.810
15	NFM -17A-T-3	Elizabeth River	17A	13Jun86	0922	Crassostrea virginica	.	0.000	0.990
16	NFM -21 -T-1	Elizabeth River	21	13Jun86	1004	Guekensia demissum	.	0.000	0.550
17	NFM -21 -T-2	Elizabeth River	21	13Jun86	1005	Guekensia demissum	.	0.000	0.460
18	NFM -21 -T-3	Elizabeth River	21	13Jun86	1006	Guekensia demissum	.	0.000	0.650
19	NFM -33 -T-1	Hampton River	33	17Jun86	1115	Crassostrea virginica	.	0.530	2.900
20	NFM -33 -T-2	Hampton River	33	17Jun86	1116	Crassostrea virginica	.	0.000	2.200
21	NFM -33 -T-3	Hampton River	33	17Jun86	1117	Crassostrea virginica	.	0.000	5.300
22	NFM -36 -T-1	James River	36	7Jun86	1650	Crassostrea virginica	.	0.000	0.160
23	NFM -36 -T-2	James River	36	7Jun86	1651	Crassostrea virginica	.	0.000	0.190
24	NFM -36 -T-3	James River	36	7Jun86	1652	Crassostrea virginica	.	0.000	0.520
25	NFM -37 -T-1	Lafayette River	37	17Jun86	1030	Crassostrea virginica	.	0.000	0.640
26	NFM -37 -T-2	Lafayette River	37	17Jun86	1031	Crassostrea virginica	.	0.000	0.400
27	NFM -37 -T-3	Lafayette River	37	17Jun86	1032	Crassostrea virginica	.	0.000	0.510
28	NFM2 -01 -T-1	Hampton Roads	01	25Oct88	1010	Crassostrea virginica	0.000	0.015	0.110
29	NFM2 -25 -T-1	James River	25	27Oct88	0755	Crassostrea virginica	0.000	0.020	0.220
30	NFM2 -25 -T-2	James River	25	27Oct88	0800	Crassostrea virginica	0.000	0.020	0.240
31	NFM2 -25 -T-3	James River	25	27Oct88	0805	Crassostrea virginica	0.000	0.020	0.250
32	NFM2 -33 -T-1	Hampton River	33	27Oct88	0715	Crassostrea virginica	0.000	0.053	0.670
33	NFM2 -33 -T-2	Hampton River	33	27Oct88	0720	Crassostrea virginica	0.000	0.060	0.720
34	NFM2 -33 -T-3	Hampton River	33	27Oct88	0725	Crassostrea virginica	0.000	0.057	0.470
35	NFM2 -33 -T-1	Hampton River	33	27Oct88	0710	Ribbed Mussels	0.000	0.058	0.330
36	NFM2 -03 -T-1	Naval Station	03	28Oct88	0800	Crassostrea virginica	0.000	0.034	0.290
37	NFM2 -03 -T-2	Naval Station	03	28Oct88	0805	Crassostrea virginica	0.000	0.018	0.170
38	NFM2 -03 -T-3	Naval Station	03	28Oct88	0810	Crassostrea virginica	0.000	0.017	0.150
39	NFM4 -33 -T-2	Hampton River	33	20Apr89	1400	Guekensia demissum	0.041	0.054	0.360
40	NFM4 -33 -T-2	Hampton River	33	20Apr89	1400	Crassostrea virginica	0.043	0.064	0.420
41	NFM4 -25 -T-1	James River	25	20Apr89	1510	Guekensia demissum	0.041	0.011	0.140

Obs	sample	region	station	date	time	depth	mbtcl_s	dbtcl_s	tbtcl_s
1	NFM2 -01 -S-1	Hampton Roads	01	25Oct88	1010	.	0.000	0.000	0.011
2	NFM2 -01 -S-1	Hampton Roads	01	25Oct89	1010	.	0.000	0.000	0.013
3	NFM2 -01 -S-1	Hampton Roads	01	25Oct89	1010	.	0.000	0.000	0.011
4	NFM2 -33 -S-1	Hampton River	33	25Oct89	1050	.	0.000	0.000	0.016
5	NFM2 -33 -S-1	Hampton River	33	25Oct89	1050	.	0.000	0.000	0.012
6	NFM2 -03A-S-1	Naval Station	03A	25Oct89	1128	.	0.000	0.000	0.011
7	NFM2 -03A-S-1	Naval Station	03A	25Oct89	1128	.	0.000	0.000	0.010
8	NFM2 -03A-S-1	Naval Station	03A	25Oct89	1128	.	0.000	0.000	0.011
9	NFM2 -29 -S-1	Hampton Roads	29	25Oct89	1205	.	0.000	0.000	0.015
10	[illegible] -29 -S-1	Hampton Roads	29	25Oct89	1205	.	0.000	0.000	0.013
11	NFM2 -25 -S-1	James River	25	25Oct89	1254	.	0.000	0.000	0.020
12	NFM2 -25 -S-1	James River	25	25Oct89	1254	.	0.000	0.000	0.024
13	NFM2 -25 -S-1	James River	25	25Oct89	1254	.	0.000	0.000	0.020
14	NFM2 -04 -S-1	Naval Station	04	25Oct89	1343	.	0.000	0.000	0.170
15	NFM2 -04 -S-1	Naval Station	04	25Oct89	1343	.	0.000	0.000	0.046
16	NFM2 -04 -S-1	Naval Station	04	25Oct89	1343	.	0.000	0.000	0.051
17	NFM2 -03 -S-1	Naval Station	03	25Oct89	1413	.	0.000	0.020	0.062
18	NFM2 -03 -S-1	Naval Station	03	25Oct89	1413	.	0.000	0.020	0.064
19	NFM2 -03 -S-1	Naval Station	03	25Oct89	1413	.	0.000	0.017	0.054
20	NFM2 -09 -S-1	Naval Station	09	26Oct89	1010	.	0.000	0.021	0.058
21	NFM2 -09 -S-1	Naval Station	09	26Oct89	1010	.	0.000	0.000	0.082
22	NFM2 -09 -S-1	Naval Station	09	26Oct89	1010	.	0.000	0.024	0.061
23	NFM2 -10 -S-1	Elizabeth River	10	26Oct89	1045	.	0.000	0.000	0.053
24	NFM2 -10 -S-1	Elizabeth River	10	26Oct89	1045	.	0.000	0.000	0.043
25	NFM2 -10 -S-1	Elizabeth River	10	26Oct89	1045	.	0.000	0.014	0.037
26	NFM2 -11 -S-1	Elizabeth River	11	26Oct89	1118	.	0.000	0.250	0.950
27	NFM2 -11 -S-1	Elizabeth River	11	26Oct89	1118	.	0.000	0.260	0.910
28	NFM2 -11 -S-1	Elizabeth River	11	26Oct89	1118	.	0.000	0.260	0.840
29	NFM2 -32 -S-1	Elizabeth River	32	26Oct89	1148	.	0.068	0.520	2.800
30	NFM2 -32 -S-1	Elizabeth River	32	26Oct89	1148	.	0.080	0.630	3.100
31	NFM2 -32 -S-1	Elizabeth River	32	26Oct89	1148	.	0.073	0.570	2.800
32	NFM2 -19 -S-1	Elizabeth River	19	26Oct89	1225	.	0.000	0.520	1.400
33	NFM2 -19 -S-1	Elizabeth River	19	26Oct89	1225	.	0.000	0.510	1.500
34	NFM2 -19 -S-1	Elizabeth River	19	26Oct89	1225	.	0.000	0.500	1.400
35	NFM4 -01 -S-1	Hampton Roads	01	18Apr89	1033	14.5	0.039	0.015	0.015
36	NFM4 -01 -S-1	Hampton Roads	01	18Apr89	1033	14.5	0.043	0.017	0.024
37	NFM4 -01 -S-1	Hampton Roads	01	18Apr89	1033	14.5	0.046	0.018	0.028
38	NFM4 -33 -S-1	Hampton River	33	18Apr89	1137	5.5	0.049	0.019	0.034
39	NFM4 -33 -S-1	Hampton River	33	18Apr89	1137	5.5	0.048	0.019	0.036
40	NFM4 -33 -S-1	Hampton River	33	18Apr89	1137	5.5	0.050	0.019	0.035
41	NFM4 -03A-S-1	Naval Station	03A	18Apr89	1213	4.5	0.043	0.017	0.022
42	NFM4 -03A-S-1	Naval Station	03A	18Apr89	1213	4.5	0.049	0.019	0.029
43	NFM4 -03A-S-1	Naval Station	03A	18Apr89	1213	4.5	0.044	0.017	0.018
44	NFM4 -29 -S-1	Hampton Roads	29	18Apr89	1239	7.0	0.045	0.017	0.051
45	NFM4 -29 -S-1	Hampton Roads	29	18Apr89	1239	7.0	0.050	0.019	0.190
46	NFM4 -29 -S-1	Hampton Roads	29	18Apr89	1239	7.0	0.046	0.018	0.031
47	NFM4 -25 -S-1	James River	25	18Apr89	1319	14.5	0.045	0.018	0.041
48	NFM4 -25 -S-1	James River	25	18Apr89	1319	14.5	0.050	0.019	0.064
49	NFM4 -25 -S-1	James River	25	18Apr89	1319	14.5	0.043	0.017	0.037
50	NFM4 -04 -S-1	Naval Station	04	18Apr89	1401	13.5	0.027	0.004	0.057
51	NFM4 -04 -S-1	Naval Station	04	18Apr89	1401	13.5	0.028	0.004	0.049
52	NFM4 -04 -S-1	Naval Station	04	18Apr89	1401	13.5	0.028	0.004	0.120
53	NFM4 -03 -S-1	Naval Station	03	18Apr89	1421	16.0	0.023	0.004	0.036
54	NFM4 -03 -S-1	Naval Station	03	18Apr89	1421	16.0	0.024	0.004	0.029
55	NFM4 -03 -S-1	Naval Station	03	18Apr89	1421	16.0	0.023	0.004	0.030
56	NFM4 -09 -S-1	Naval Station	09	19Apr89	940	15.5	0.023	0.020	0.075
57	NFM4 -09 -S-1	Naval Station	09	19Apr89	940	15.5	0.023	0.022	0.075
58	NFM4 -09 -S-1	Naval Station	09	19Apr89	940	15.5	0.024	0.008	0.072
59	NFM4 -10 -S-1	Elizabeth River	10	19Apr89	1012	16.0	0.023	0.003	0.024
60	NFM4 -10 -S-1	Elizabeth River	10	19Apr89	1012	16.0	0.023	0.004	0.026
61	NFM4 -10 -S-1	Elizabeth River	10	19Apr89	1012	16.0	0.023	0.004	0.024
62	NFM4 -11 -S-1	Elizabeth River	11	19Apr89	1035	15.5	0.095	0.250	0.590
63	NFM4 -11 -S-1	Elizabeth River	11	19Apr89	1035	15.5	0.097	0.240	0.420
64	NFM4 -11 -S-1	Elizabeth River	11	19Apr89	1035	15.5	0.084	0.210	0.410
65	NFM4 -32 -S-1	Elizabeth River	32	20Apr89	922	16.0	0.110	0.350	1.800
66	NFM4 -32 -S-1	Elizabeth River	32	20Apr89	922	16.0	0.130	0.420	1.800
67	NFM4 -32 -S-1	Elizabeth River	32	20Apr89	922	16.0	0.150	0.490	2.000
68	NFM4 -19 -S-1	Elizabeth River	19	20Apr89	945	14.0	0.150	0.450	0.920
69	NFM4 -19 -S-1	Elizabeth River	19	20Apr89	945	14.0	0.140	0.430	0.900
70	NFM4 -19 -S-1	Elizabeth River	19	20Apr89	945	14.0	0.130	0.430	0.850

APPENDIX B

TABULAR SUMMARY OF WATER TBT MEAN CONCENTRATIONS PRESENTED IN FIGURES 4–9

The number of samples analyzed and standard errors are reported for samples collected within each region within each harbor.

San Diego Bay Organotin Monitoring
Mean TBT Water Concentration with Standard Error
Units are ng/l

layer=Surface

		Survey							
		Feb 86	Oct 86	Oct 87	Feb 88	Oct 88	Jan 89	Apr 89	Aug 89
North	N		12	15	15	12	12	12	12
	MEAN		4.7	11.0	13.0	6.8	9.4	4.7	3.4
	STDERR		0.8	1.1	2.2	0.9	0.7	0.5	0.4
South	N		12	15	16	9	9	9	9
	MEAN		5.6	9.9	9.9	3.4	3.6	1.6	1.3
	STDERR		1.0	2.1	1.8	0.5	0.6	0.3	0.3
Navy	N		11	18	18	12	12	12	12
	MEAN		5.6	11.0	14.0	6.7	6.1	3.5	4.7
	STDERR		0.7	0.9	1.0	0.7	0.6	0.5	0.4
Yacht	N	27	25	27	27	18	18	18	18
	MEAN	120.0	99.0	100.0	110.0	26.0	68.0	19.0	24.0
	STDERR	17.0	17.7	21.5	16.3	3.9	17.6	3.4	4.4

San Diego Bay Organotin Monitoring
Mean TBT Water Concentration with Standard Error
Units are ng/l

layer=Deep

Region		Survey Feb 86	Oct 86	Oct 87	Feb 88	Oct 88	Jan 89	Apr 89	Aug 89
North	N		14	15	15	12	12	12	12
	MEAN		6.6	10.0	14.0	4.3	12.0	4.4	3.2
	STDERR		0.7	1.5	1.7	0.6	1.0	0.6	0.5
South	N		12	15	16	9	9	9	8
	MEAN		5.0	11.0	12.0	4.2	4.0	1.7	1.1
	STDERR		0.9	2.1	1.7	0.6	0.7	0.4	0.4
Navy	N		11	18	18	12	12	12	12
	MEAN		4.8	12.0	15.0	6.1	7.4	3.7	4.7
	STDERR		0.7	1.1	0.8	0.5	1.2	0.8	0.4
Yacht	N	8	24	24	27	18	18	17	18
	MEAN	41.0	45.0	41.0	56.0	23.0	61.0	8.8	11.0
	STDERR	12.3	5.1	6.1	7.3	3.2	12.7	0.9	0.9

Pearl Harbor Organotin Monitoring
Mean TBT Water Concentration with Standard Error
Units are ng/l

layer=Surface

Region		Apr 86	Feb 87	Apr 87	Jul 87	Oct 87	Jan 88	Oct 88	Jan 89	Apr 89	Jul 89
West Loch	N	3	3	2	3	6	6	3	3	3	3
	MEAN	0.0	0.6	3.4	0.0	0.1	1.8	0.6	0.3	0.0	0.4
	STDERR	0.0	0.2	0.4	0.0	0.0	1.6	0.5	0.2	0.0	0.2
Drydock #2	N		3	3	3	3	3	3	3	3	3
	MEAN		8.6	8.3	2.6	3.9	2.1	1.5	1.1	1.0	1.6
	STDERR		1.8	0.2	0.1	1.9	0.1	0.4	0.4	0.1	0.4
Southeast Loch	N	16	15	9	10	9	9	3	3	3	3
	MEAN	20.0	31.0	15.0	5.8	2.5	9.2	2.4	7.0	4.5	9.7
	STDERR	4.4	9.2	2.2	0.8	0.4	1.2	0.8	2.7	1.4	2.7
Middle Loch	N	1	3	3	3	6	6	3	3	3	2
	MEAN	0.0	1.6	3.5	1.5	0.4	0.9	0.9	0.6	1.7	0.4
	STDERR	0.0	0.4	1.2	0.1	0.3	0.3	0.1	0.3	0.2	0.1
Rainbow Marina	N	5	3	3	3	3	3	3	2	3	3
	MEAN	14.0	6.7	27.0	130.0	26.0	25.0	20.0	8.5	21.0	25.0
	STDERR	3.9	0.1	0.9	35.0	5.9	7.8	7.1	5.5	4.8	15.0
Waiau Shoal	N	2	3	3	1	3	3		3	3	2
	MEAN	0.0	3.1	4.9	2.7	2.0	4.6		2.3	2.6	1.5
	STDERR	0.0	0.5	0.5	0.0	0.3	1.4		0.2	0.9	0.1
Drydock #4	N		3	3	3	3	3	3	3	3	3
	MEAN		5.7	3.4	2.5	1.8	1.5	0.9	0.8	1.1	1.5
	STDERR		1.0	0.4	0.2	0.8	0.3	0.3	0.2	0.7	0.1
Channels	N	5	48	14	10	21	21	9	9	9	9
	MEAN	0.0	5.0	6.8	2.8	1.8	2.7	1.5	2.0	1.8	2.0
	STDERR	0.0	0.7	1.0	0.3	0.2	0.3	0.3	0.3	0.4	0.4

Pearl Harbor Organotin Monitoring
Mean TBT Water Concentration with Standard Error
Units are ng/l

layer=Deep

Region		Survey									
		Apr 86	Feb 87	Apr 87	Jul 87	Oct 87	Jan 88	Oct 88	Jan 89	Apr 89	Jul 89
West Loch	N		3	3	3	6	6	3	3	3	3
	MEAN		1.3	1.7	0.0	0.3	0.8	0.5	0.4	0.6	0.6
	STDERR		0.6	0.4	0.0	0.1	0.2	0.3	0.2	0.6	0.1
Drydock #2	N		3	3	3	3	3	3	3	3	3
	MEAN		7.1	26.0	3.9	6.0	5.4	2.3	1.6	1.2	5.0
	STDERR		2.2	10.2	0.8	2.5	0.4	0.1	0.2	0.2	2.5
Southeast Loch	N	7	15	9	10	8	9	2	3	3	3
	MEAN	4.3	6.4	10.0	2.4	1.6	2.9	0.5	3.5	1.4	2.5
	STDERR	1.6	0.6	1.7	0.2	0.1	0.2	0.3	1.5	0.4	0.5
Middle Loch	N	2	3	3	3	6	6	3	3	3	3
	MEAN	0.0	1.2	1.7	0.9	0.7	0.6	0.5	0.5	0.3	0.4
	STDERR	0.0	0.3	0.1	0.3	0.3	0.2	0.3	0.1	0.2	0.2
Rainbow Marina	N	2	3	3	3	3	3	3	3	3	3
	MEAN	0.0	5.6	6.4	5.6	2.9	2.9	12.0	4.1	3.0	9.8
	STDERR	0.0	0.7	1.0	3.3	0.6	0.5	4.7	1.0	1.2	7.2
Waiau Shoal	N	2	3	3	1	3	3		3	3	3
	MEAN	0.0	3.8	2.1	2.7	1.7	3.5		2.2	1.6	1.4
	STDERR	0.0	0.7	0.3	0.0	0.4	0.5		0.3	0.7	0.1
Drydock #4	N		3	3	3	3	3	3	3	3	3
	MEAN		3.7	1.9	1.7	0.4	1.6	0.5	1.0	0.8	0.5
	STDERR		1.2	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.0
Channels	N	6	27	13	10	21	21	9	9	9	9
	MEAN	0.0	3.8	3.0	1.2	1.0	2.4	0.8	0.8	0.5	1.0
	STDERR	0.0	0.5	0.5	0.2	0.2	1.0	0.1	0.2	0.1	0.3

Norfolk Harbor Organotin Monitoring
Mean TBT Water Concentration with Standard Error
Units are ng/l

layer=Surface

		Survey				
		Jun 86	Oct 88	Jan 89	Apr 89	Jul 89
Hampton Roads	N	11	6	6	6	6
	MEAN	0.0	5.5	5.0	0.9	0.9
	STDERR	0.0	1.3	1.0	0.2	0.2
James River	N	4	3	3	3	2
	MEAN	0.0	2.6	2.2	0.7	0.6
	STDERR	0.0	0.1	0.3	0.4	0.2
Naval Station	N	8	12	12	12	12
	MEAN	0.0	4.3	5.5	1.0	0.9
	STDERR	0.0	0.7	0.7	0.1	0.1
Elizabeth River	N	31	12	12	12	12
	MEAN	2.4	22.0	25.0	7.9	3.9
	STDERR	0.5	3.1	3.5	1.0	0.5
Hampton River	N	6	3	3	2	3
	MEAN	21.0	9.5	3.9	1.6	3.7
	STDERR	8.1	2.4	0.2	1.0	0.8

Norfolk Harbor Organotin Monitoring
Mean TBT Water Concentration with Standard Error
Units are ng/l

layer=Deep

Region		Survey Jun 86	Oct 88	Jan 89	Apr 89	Jul 89
Hampton Roads	N	9	6	6	6	6
	MEAN	0.0	4.6	4.3	1.2	1.1
	STDERR	0.0	1.4	0.6	0.4	0.2
James River	N	4	3	3	3	2
	MEAN	0.0	4.8	3.9	1.9	2.9
	STDERR	0.0	0.4	0.5	1.0	0.1
Naval Station	N	6	12	12	12	12
	MEAN	0.0	4.4	5.1	1.8	1.8
	STDERR	0.0	0.8	0.6	0.3	0.2
Elizabeth River	N	37	12	12	12	12
	MEAN	8.5	21.0	24.0	5.4	8.0
	STDERR	0.9	3.6	2.9	0.7	1.3
Hampton River	N	4	3	3	3	3
	MEAN	14.0	7.5	2.5	3.2	4.5
	STDERR	2.3	1.8	0.1	1.9	0.3

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13 ABSTRACT *(Maximum 200 words)*

This report details the periodic quarterly monitoring of the San Diego, Norfolk, and Pearl Harbors in compliance with the Organotin Antifouling Paint Control Act (OAPCA) of 1988.

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By P. F. Seligman, J. G. Grovhoug, R. L. Fransham, B. Davidson, A. O. Valkirs
Dated June 1990

Literature Change

1. Replace pages 14, 21 and 23 in NOSC TR 1346 with the attached corrected pages. The report was mailed to you on 8 August 1990.

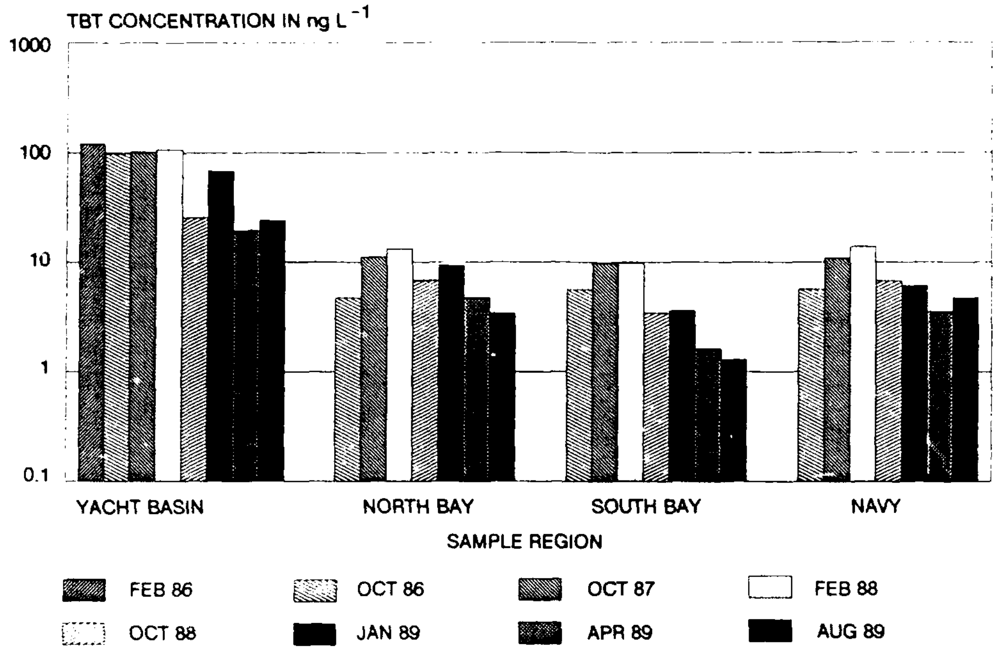

Figure 4. Mean regional surface-water TBT concentrations in San Diego Bay.

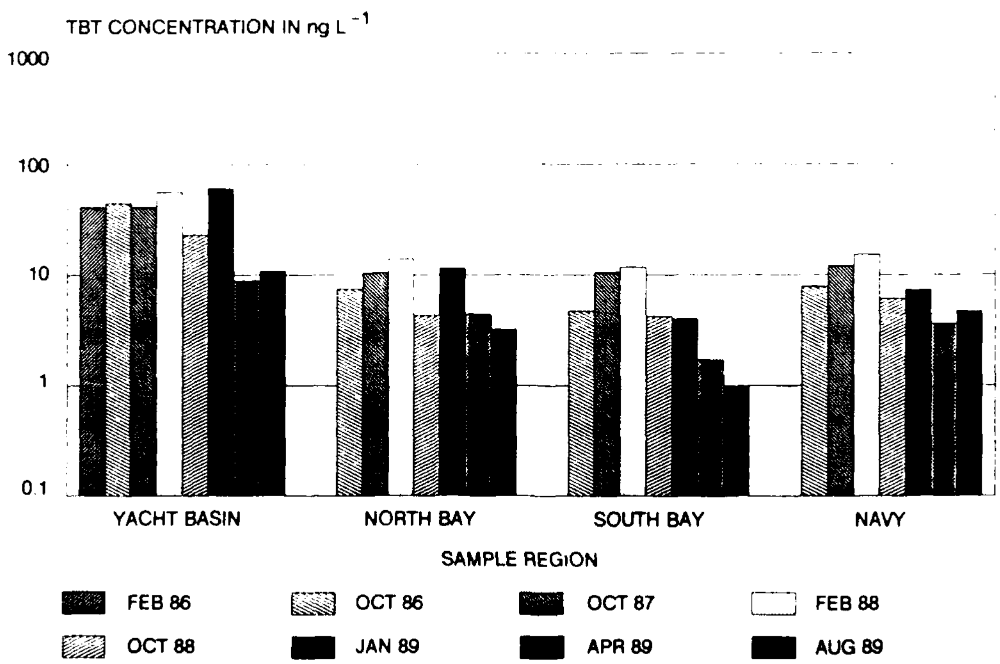

Figure 5. Mean regional bottom-water TBT concentrations in San Diego Bay.

were significantly lower than February 1988 values. In the Naval region a significant difference (P = 0.0001) in bottom water TBT concentrations was found among monitoring periods. Bottom-water TBT concentrations were statistically similar among the April 1989 and July 1989 periods and statistically lower than values measured during the February 1988 period.

Sediment

A summary of San Diego Bay sediment TBT concentrations by station is reported in table 1. Data from individual samples are summarized in Appendix A. Significant (p = 0.05) changes in sediment TBT concentrations over time were recorded in only 6 of 14 stations in San Diego Bay. Analysis of sediment samples collected from San Diego Bay indicated that TBT concentrations were highest in the Shelter Island, Commercial Basin, and Harbor Island yacht anchorages. The presence of high-sediment TBT concentrations in these areas is consistent with their size, large number of vessels, and vessel repair activities. Significant decreases in sediment TBT concentrations have not yet been seen in these areas in contrast to recent decreases in water TBT values. A significant decrease in sediment TBT concentrations was recorded at Naval region station 22 where values were previously similar to yacht harbor stations. TBT sediment concentrations were significantly lower (p = 0.004) during the July 1989 monitoring period than during the October 1988 monitoring period. In contrast, while a significant difference (p = 0.0001) in sediment TBT concentration was recorded at station 38 in the Naval region, the July 1989 monitoring period and the three preceding periods were statistically similar in the TBT concentrations measured. TBT concentrations measured during the February 1988 survey were significantly higher than those measured during the other monitoring periods.

Table 1. San Diego Bay mean TBT sediment concentrations (units are ng/g dry weight).

		Feb 88		Oct 88		Jan 89		Apr 89		Jul 89	
Station	Region	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL	N	TBTCL
02	North	3	1.7	3	12	3	70	3	33	3	34
04	Navy	3	57								
05	North	3	37	3	16	3	17	3	37	3	21
07	Yacht	3	80								
08	Yacht	3	96	3	97	3	120	3	90	3	74
10	Yacht	6	160	3	56	3	160	3	84	3	80
11	Yacht	3	690	3	1100	3	530	3	430	3	220
13	North	3	76	3	43	3	39	3	51	3	29
15	Navy	3	91								
16	Yacht	3	110								
18	North	3	78	3	53	3	64	3	68	3	28
19	Yacht	3	55								
21	Navy	3	190								
22	Navy	3	56	3	240	3	280	3	160	3	130
26	South	3	31								
26A	Navy	3	29								
26B	Yacht	3	56								
29	Navy	3	350								
33	North	3	38								
35	South					3	19	3	25	3	26
38	Navy	3	180	3	37	3	40	3	56	3	43
39	Navy										
42	South	3	36								
44	South	3	4.7								
46	South			3	6.7	3	8.7	3	24	3	22
48	South					3	7.7	3	16	3	20
49	Yacht			3	29	3	29	3	30	3	25
53	Yacht			3	15	3	19	3	45	3	31

Table 4. Pearl Harbor tissue concentrations (units are ng/g wet weight).

Station	Survey	Species	N	TBTCL
03	Jan 89	*C. virginica*	3	38
03A	Apr 86	*C. virginica*	5	70
	Feb 87	*C. virginica*	3	70
	Jul 87	*C. virginica*	3	20
	Jan 88	*C. virginica*	3	25
	Jan 89	*C. virginica*	3	11
05A	Apr 86	C. virginica	5	80
	Feb 87	*Ostrea* spp.	3	64
06	Feb 87	*Ostrea* spp.	3	110
07	Feb 87	*Ostrea* spp.	3	240
	Jul 87	*Ostrea* spp.	3	63
	Jan 88	*Ostrea* spp.	3	90
	Jan 89	*C. virginica*	3	65
11B	Jan 89	*C. virginica*	3	190
14	Jan 89	*C. virginica*	3	280
14A	Jul 87	*C. virginica*	3	60
	Jan 88	*C. virginica*	3	180
14B	Apr 86	*C. virginica*	3	350
	Feb 87	*Ostrea* spp.	3	360
16	Feb 87	*Ostrea* spp.	3	160
	Jan 88	*C. virginica*	3	140
	Jan 89	*C. virginica*	3	45

A series of one-way ANOVAs testing tissue concentrations between surveys at each station individually indicated statistical differences in time at three stations. Minor differences in tissue TBT concentrations were seen at station 3A during monitoring periods following 1986 and 1987 where the significantly highest TBT concentrations were recorded, although values were low during all the collection periods. The same temporal pattern was seen at station 7 near the shipyard after February 1987. Lower TBT values recorded at station 7 may reflect the absence of TBT paint application during periods approximating recent surveys. Tissue concentrations at station 16 have significantly decreased with the lowest concentration recorded during the latest (January 1989) survey.

NORFOLK

Water

Mean-surface and bottom-water TBT concentrations from samples collected from five regions over five monitoring periods are summarized in figures 8 and 9. Data from individual samples are recorded in Appendix A. Significant differences between surface- and bottom-water TBT concentrations were found in only 5 of 22 comparisons. Therefore, we focused our analysis on TBT concentrations in surface-water samples. Surface-water TBT values have decreased or remained very low in the five regions shown in figure 8 during the last two monitoring periods. A similar trend toward decreasing TBT concentrations was seen in bottom-water samples (figure 9).

The Hampton Roads region exhibited a significant decrease in surface-water TBT concentrations during the April and July 1989 surveys from previous values recorded during the October 1988 and January 1989 periods. In October 1988 and January 1989, TBT surface values were 5.4 and 5.0 ng L^{-1}, respectively. During the April and July 1989 monitoring periods, TBT concentrations had decreased to 0.9 ng L^{-1}. Significant decreases in surface-water TBT concentrations were also seen in

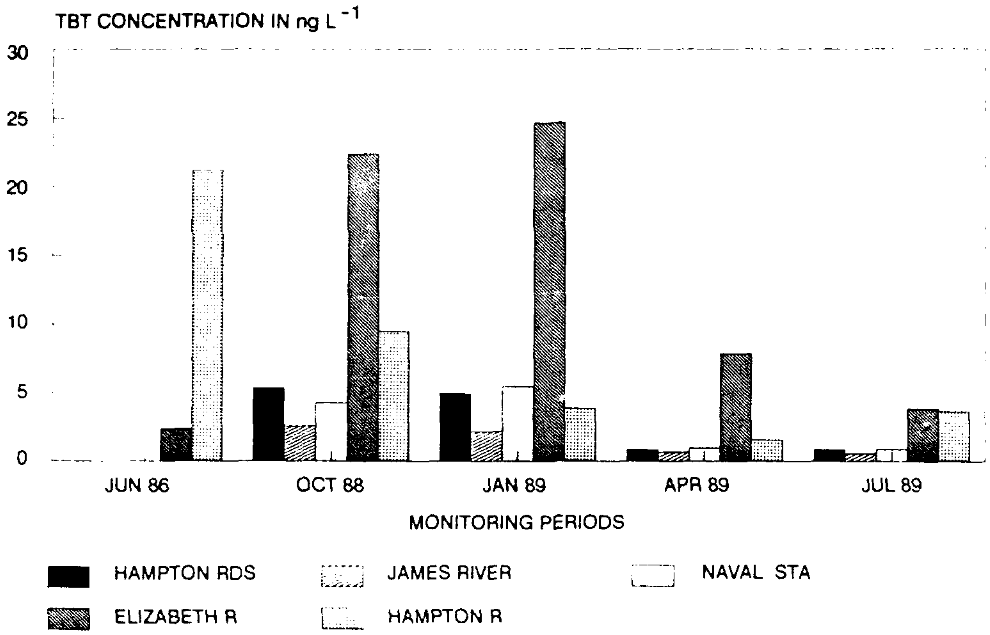

Figure 8. Mean regional surface-water TBT concentrations in Norfolk, VA.

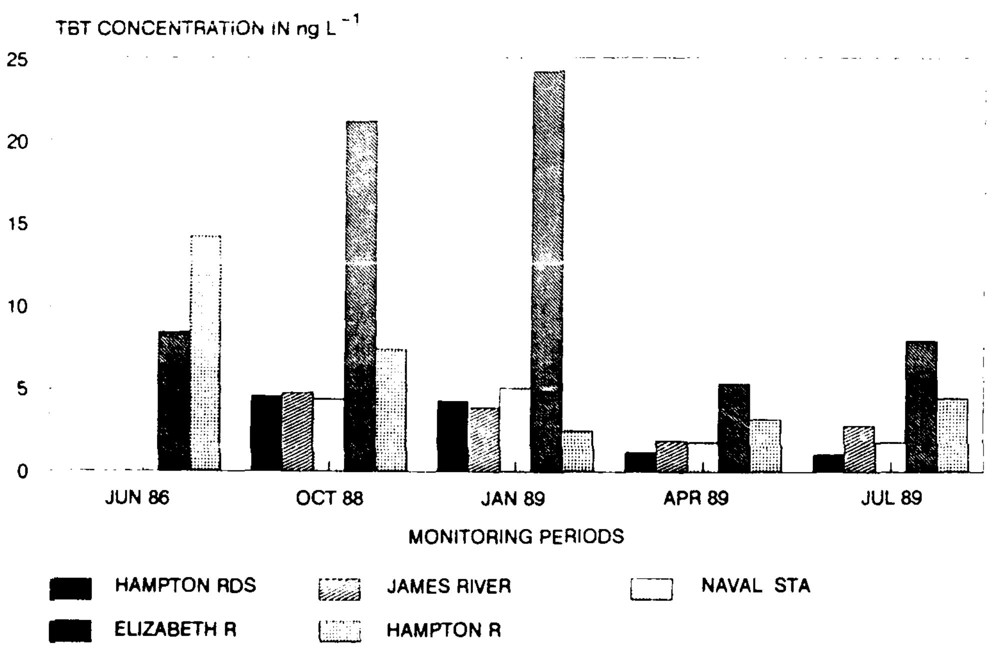

Figure 9. Mean regional bottom-water TBT concentrations in Norfolk, VA.

the Naval Station region during the April and July monitoring periods from those recorded during the October 1988 and January 1989 sampling intervals. TBT concentrations during October 1988 and January 1989 were 4.3 and 5.5 ng L^{-1} respectively. During the April and July 1989 monitoring periods, concentrations had decreased to 1.0 and 0.9 ng L^{-1}.

Surface TBT values were statistically similar in the Elizabeth River during the June 1986 period and the April and July 1989 monitoring periods (2.4 to 7.9 ng L). Significantly higher values (22 to 25 ng L^{-1}) were recorded during intermediate periods in October and January 1989. The Hampton River region exhibited significantly higher surface TBT values during the June 1986 and October 1988 periods (21 and 9.5 ng L^{-1}) from the later monitoring intervals, which ranged from 1.6 to 3.9 ng L^{-1}. The James River region was characterized by very low TBT surface mean values that were always less than 3 ng L^{-1} and were not significantly differe... among monitoring periods.

Tissue

Tissue-sample TBT concentrations from oysters and some mussels collected in Norfolk Harbor during June 1986, October 1988, and April 1989 are summarized in table 5. Data from individual samples are recorded in Appendix A. Few measurements of tissue TBT concentrations are currently available, therefore a statistical treatment of the data as not applied. A continuous decrease in tissue TBT concentrations has been observed, however, at station 33 in the Hampton River area indicating that decreasing water TBT concentrations may be the causative factor.

Table 5. Norfolk Harbor mean TBT tissue concentrations (units are ng/g wet weight).

		Jun 86		Oct 88		Apr 89	
Station	Region	N	TBTCL	N	TBTCL	N	TBTCL
01	Hampton Roads			1	110		
03	Naval Station			3	200		
03B	Naval Station	3	140				
11	Elizabeth R.	2	1200				
13A	Elizabeth R.	3	5200				
15	Elizabeth R.	3	520				
17A	Elizabeth R.	3	890*				
21	Elizabeth R.	3	550				
25	James River			3	240	1	140
33	Hampton River	3	3500	3	620	1	420
33	Hampton River			1	330*	1	360*
36	James River	3	290				
37	Lafayette R.	3	520				

*Tissues collected from the ribbed mussel *Guekensia demissum*. All other tissues are from the oyster *Crassostrea vriginica*.

Sediment

Sediment data for Norfolk Harbor are summarized in table 6. Data from individual samples are recorded in Appendix A. Since data from several periods are not yet available, statistical analysis has not been performed. The data do, however, indicate that sediment TBT concentrations have decreased at several stations in the Elizabeth River region by approximately 50 percent in some instances.

Table 6. Norfolk Harbor mean TBT sediment concentrations (units are ng/g dry weight).

		Oct 88		Apr 89	
Station	Region	N	TBTCL	N	TBTCL
01	Hampton Roads	3	12	3	22
03	Naval Station	3	60	3	32
03A	Naval Station	3	11	3	23
04	Naval Station	3	89	3	75
09	Naval Station	3	67	3	74
10	Elizabeth R.	3	44	3	25
11	Elizabeth R.	3	900	3	470
19	Elizabeth R.	3	1400	3	890
25	James River	3	21	3	47
29	Hampton Roads	3	14	3	91
32	Elizabeth R.	3	2900	3	1900
33	Hampton River	3	14	3	35